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RAILWAY GAZETTE
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CONTENTS

	PAGE
Editorial Notes	101
L.N.E.R. Wartime Operation	103
Railways and Fruit Traffic	103
Railway Road Interests in the U.S.A. and Canada	104
Letters to the Editor	106
The Scrap Heap	107
Overseas Railway Affairs	108
Trade and Transport in South America	110
Locomotive Working on the N.W.R., India—II	111
The Railways of Uruguay	112
Personal	115
Transport Services and the War	117
Stock Market and Table	124

DIESEL RAILWAY TRACTION SUPPLEMENT

The August issue of THE RAILWAY GAZETTE *Supplement, illustrating and describing developments in Diesel Railway Traction, will be ready on August 3, price 1s.*

INDEX

An index to the seventy-eighth volume of THE RAILWAY GAZETTE, *covering the issues from January 1 to June 25, 1943, has been prepared, and is now available free of charge on application to the Publisher*

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:
Mondays to Fridays 9.30 a.m. till 5.30 p.m.
The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

No Revision of Control Agreement

AS was recorded briefly last week, the British Railway Stockholders Union Limited has published a letter which was sent a short time ago by the Treasury to a member of the Union in reply to a private inquiry as to whether the Government might reconsider the terms of the railway control agreement. The Treasury reply states that the agreement was negotiated at a time of great uncertainty, when the present trend of railway revenue could not have been foreseen and might very well have been reversed. The fact that the agreement so far had turned out better for the Government than might have been expected did not justify its reopening, as it would have been impossible for the Government to reopen the matter if events had taken an unfavourable turn. The letter concludes by stating that the Treasury can hold out no prospect of the Government being willing to reconsider the terms of the agreement. It will be recalled that the fact that the latter might have operated for the benefit of the railways at the expense of the Government was pointed out by Sir Charles Hambro at the annual meeting of the Great Western Railway Company on March 10. As we have previously remarked, however, operation of the present agreement extends beyond the range of the present peak traffics and until at least one year after Government control of the railways terminates, consequently its terms cannot be viewed in their correct perspective until a much later date.

Railway Interim Dividends

The home railway dividends which had been announced at the time of going to press bear out the expectation that the boards would repeat the distributions of a year ago. Thus, the Southern Railway Company directors have declared an interim dividend of 2½ per cent. on the preferred ordinary stock, and the board of the Great Western Railway Company is again paying 2 per cent. on the consolidated ordinary stock. The London Passenger Transport Board has announced a payment on account of interest on the "C" stock at the rate of 1¼ per cent. Obviously, under the rental agreement the scope for any variation in dividends is extremely small, and any fractional improvements which the directors of the companies may see fit to make in payments might most reasonably be left until the close of the year, when they will have before them the full results of operations which fall outside the scope of the pool of receipts. It is believed on the Stock Exchange that this may enable some slight increase in the final rates compared with those paid in the second half of last year.

Heavy Weekend Travel

Some of the heaviest travel of the year took place last weekend, when most of the London main-line stations had to cope with great crowds of holidaymakers. At Waterloo it was reported that the crowds of pleasure travellers were so great that bookings on certain trains running to stations west of Salisbury had to be suspended early in the day. At some large provincial railway stations there was also heavy pressure on available railway passenger services, notwithstanding the many appeals which have been made to avoid travel at the present time. In part, no doubt, the exodus from the towns was the result of an endeavour to get away before the bank holiday weekend, but unless the publicity which has been given to last week's travel discomfort—practically all popular trains were overcrowded, and in some cases would-be travellers were left on the platforms—serves as a deterrent, it seems likely that the limited pasenger service will again prove insufficient just before the August Bank Holiday.

An International Railway Engineer

An international railway career of unusual length, variety, and diversity has now closed with the death, on June 2, in his 91st year, of Mr. John F. Stevens, to whom reference is made in our personal columns, page 115. After extensive constructional experience in both Canada and the U.S.A., he came into prominence by his discovery, on behalf of the (U.S.A.) Great Northern Railway, of the Marias Pass through the Rocky Mountains, and then the Stevens Pass through the Cascade Range. In 1905, President Theodore Roosevelt appointed him Chief Engineer of the Isthmian Canal Commission, and his organising ability paved the way for the successful completion of the Panama Canal. He returned to the U.S.A. in 1907, and spent the next ten years in railway engineering work of considerable magnitude. President Wilson appointed Mr. Stevens, in May, 1917, to be Chairman of a commission of railway engineers sent to Russia at the request of the Kerensky Government to rehabilitate and operate the railways of Siberia, and after the revolution he found it necessary to act almost as an independent governor. Two years later he became President

of the Inter-Allied Technical Board, with headquarters in Harbin, Manchuria, and it is known that he was instrumental in checking the efforts of the Japanese Government to annex the Russian railways in Manchuria. After the Allied troops were withdrawn from Siberia in 1923, Mr. Stevens returned to the U.S.A. to resume consulting engineering work.

Station Loud-Speaker Systems

For some time, the L.N.E.R. has been considering the development and improvement of "public address systems," to use the phrase which is now being adopted for loud-speaker installations on railway stations. Within recent years, installations embodying the latest improvements and devices have been installed at Kings Cross, York, and several other stations throughout the system. The latest, and perhaps the most comprehensive equipment, has just been completed at Waverley Station, Edinburgh, and was brought into use a fortnight ago. It comprises a total of 150 loud-speakers covering all platforms, concourses, passage-ways, refreshment rooms, and the dining room. Some details are given at page 121. One of the most interesting features is that the installation is designed to meet the particular needs of a station where it is essential to restrict the announcements to selected areas in some cases, and to broadcast over a wide area in others. Development in public address systems has been rapid, and other installations on the L.N.E.R., which are now being arranged, will have their value considerably enhanced by the inclusion of a method of automatic volume control which has not been employed hitherto in this connection.

Restricted Canadian Holiday Services

In accordance with the instructions of the Canadian Transport Controller, it has become necessary to restrict summer passenger services operated by the Canadian railways. The Government has announced that holiday and week-end travel must be curtailed and that holidays should begin and terminate in the mid-week. Throughout Canada heavy pressure for sleeping-car accommodation continues to such an extent that it is impossible for the railways to meet all demands, and it is absolutely necessary to give first choice on available space to military and semi-military traffic. As additional trains cannot be provided, and in order to secure sleeping-car space, it is necessary for passengers to travel during the mid-week and to limit the week-end travel. The usual summer services were shown in timetable folders and other publications, but, as these cannot now be operated, members of the public have been advised to consult ticket agents so that their travel plans may be adjusted. Important changes in the passenger services of the Canadian National Railways are outlined at page 117. Previous deterrents to passenger travel in Canada have taken the form of the withdrawal of many special cheap fares, and the suspension from April 15 to August 15 of such concessions as remain. Earlier reference to this was made in our April 30 issue (page 442).

Fewer Trains but More Travellers

The discontinuance during wartime of the issue of official annual statistics by the British main-line railway companies, and by the Ministry of War Transport, naturally prevents traffic trends being assessed statistically, although the nature of the trends is well known and, in fact, well publicised. Periodically, however, such publicity is reinforced with some officially-authorised figures which enable one or other trend to be assessed with greater precision. It was recently announced by the L.M.S.R. that in 1942 passenger travel on that railway amounted to 4,300,000,000 miles of travel. This is an increase of 50 per cent. over the year before the war. The figures of originating passenger journeys on the L.M.S.R. for the year 1942 show an increase of nearly 55,000,000 journeys over 1941, and of nearly 8,000,000 over the pre-war year of 1938. The figures are the more remarkable because, in order to make way for additional trains of war freights, passengers had far fewer trains by which to travel. Actually, the L.M.S.R. passenger-train mileage last year was 31,000,000 miles less than in the last pre-war year. Service travel in 1942 accounted for 55 per cent. of all the journeys between 100 and 200 miles in length, and for distances over 200 miles the proportion of Service travel was upwards of 75 per cent. Workmen's travel increased by more than 100 per cent. compared with pre-war days.

Problems of Mexican Railway Management

An apparent conclusion of the prolonged discussion of the major problem of railway management in Mexico was reached last March, when the Syndicate of Railway Workers accepted the chief proposals of the managers of the National Railways of Mexico for reforms designed to make the entire system more efficient. The plan then submitted by the workers to President Avila Camacho was that they were prepared to relinquish to the management, for the duration of the war, the right to select supervisory officials and to impose disciplinary measures on offending employees. Upon the receipt of these proposals, the President is said to have stated that he regarded the railway position as solved. The rights which the workers have now relinquished temporarily, gave the Syndicate of Railway Workers effective control of the operations of the railways, and were widely reported to have resulted in abuses, waste, and inefficiency that have caused a general deterioration of the railway service. The extensive rehabilitation of the main railways of Mexico, with the support of the U.S.A., which was planned last year and is already understood to be well in hand, should bring the physical properties up to a higher state of efficiency than they have enjoyed for many years past, and the patriotic behaviour of the Syndicate of Railway Workers should enable the railways to be operated with improved efficiency.

Employees' Safety in the U.S.A.

Some notable results were achieved during 1942 in the annual inter-railway competition, promoted by the National Safety Council of the United States, to secure the maximum safety of employees while on duty. The basis of calculation is the number of reportable casualties, resulting in death or enforced absence from duty, to every million man-hr. worked; and the railways are divided for this purpose into groups, ranging from the largest lines, working an aggregate of over 50,000,000 man-hr. annually, to "short lines," working less than 1,000,000 man-hr. The 1942 contest, details of which appear on page 108, was remarkable in producing two "zero" results. The "short line" Lake Superior & Ishpeming Railroad had a clean sheet, and so had the six maintenance shops of the Pullman Company, which between them worked 7,108,052 man-hr. The three Pullman operating zones also did well, with casualty rates ranging from 1·35 to 2·62 for every million man-hr. worked. The larger systems were headed by the Union Pacific Railroad for the second year in succession. It is of interest also that the U.P.RR. train-accident rate of 4·05 to every million locomotive-miles was 48 per cent. below the general average in the United States.

Wartime Passenger Travel

One result of war conditions is that many thousands of passengers, both Service and civilian, are making their first serious acquaintance with long-distance railway travel. There are, on the one hand, those who previously made all their journeys by road, whether in their own cars or motorcoaches; and, on the other hand, those who for lack of means made few if any journeys of any length, other than occasional holiday trips. Now, through no fault of the railways, their first impressions of railway travel novices are bound to be bad. Americans are making the same discovery. "The way millions of passengers are being handled is giving them a wholly false impression regarding the efficiency and comfort with which passengers are normally handled," says a recent editorial in our contemporary, the *Railway Age*. "This will tend not only to make them avoid trains after the war, but, worse still, to feel unfriendly toward the railways. They stand in long lines in ticket offices or stations before they can buy tickets. They wait long periods, often hours, in crowded stations or on crowded platforms for trains that are late. They find cars, especially coaches, overcrowded, and often dirty. They wait in *queues* before they can get into dining cars, and often are unable to get meals at all. They see trains already late become later and later as they are delayed at stations, and wonder what causes these long delays and why more is not done to prevent them. Finally, they often arrive late at destination, tired, disgusted, and resolved never to travel by rail again when they can travel any other way." In Great Britain we have been through this phase; we have discovered that the most philosophical attitude to take towards it is simply to realise that we are at war.

Moving American Troops

Some interesting particulars have been made public recently concerning the railway facilities required to move a division of the United States Army, with full divisional equipment and armament. Overnight travel needs 26 Pullman sleeping cars, 230 tourist sleepers, 82 bogie vans for field kitchens, 9 bogie box-wagons, and 895 bogie flat or gondola wagons for the accommodation of big guns, tanks, jeeps, and other wheeled vehicles, such as ambulances and laundries. During the first world war, the average number of moves made by the American soldier before embarkation, apart from leave journeys, was

three; now it is considerably higher, and may amount to eight. These include the first move to the induction centre, followed, after seven days' leave, by a move to the reception centre. After that, in succession, come the movement to the training centre for basic training, and from there to the normal training centres, according to the branch of the Army that has been entered; transport must next be provided to and from the big manœuvres; next comes a visit to a specialised training centre, for manœuvres in desert fighting, ski fighting, and so on; and, finally, the move to the port of embarkation. At the present time, apart from journeys on leave, American troops are being moved by rail, in official troop movements, to a total of about 1,750,000 monthly, or an average of 50,000 a day. Roughly one-half the total supply of Pullman cars has been withdrawn from the passenger pool for exclusive military use, and about 3,000 day coaches—17 per cent. of the total supply, is being used in the same way. Actually, the majority of the movements take place in drafts of above 250 men at a time.

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Railways and Soil Erosion

Soil erosion is the concern of the railway engineer in many countries in varying ways and degrees. An extreme case occurred at Bawdwin, the mining centre of the Burma Corporation in the Northern Shan States, lately bombed by the Allied Air Forces. The sulphur fumes from the silver-lead smelter killed all vegetation on the steep hill sides along which runs the corporation's railway, and the whole hillside began to slip down on to it. All kinds of remedial measures were taken, until eventually it was decided to face the great expense of constructing a vast masonry chimney, large enough to admit a stage coach, running up the face of the mountain to a height of perhaps 1,000 ft. above the smelter in the valley, and ¾ of a mile long, to a stack on the summit. This carried the fumes clear of the valley and enabled the hillside to be re-afforested. In South Africa the railway administration and staff make a special study of soil erosion, as conditions of soil and weather there encourage faulty construction and drainage of roads or railways to cause the scouring out of *dongas* or channels. The principal remedies are the planting of grass and trees, the building up of *dongas*, and, above all, the construction of adequate contour drains. The administration works in close co-operation with the Government Commission dealing with soil erosion, and the problem is being tackled on an intensified scale.

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Reciprocating Balance

Long established practice ordains the addition to locomotive driving wheels of masses to neutralise in some degree the inertia effects of reciprocating parts. This "overbalance" as the Americans call it, although usefully decreasing the magnitude of alternating forces and couples in the horizontal plane, introduces new unbalanced vertical forces, often described as the hammer-blow effect. Thus the cure for unbalanced reciprocating forces is frequently worse than the disease and, now that engines are so much longer and so much more massive than formerly, the tendency is to reduce the amount of reciprocating balance, or even to dispense with it altogether. The greater the moment of inertia of the locomotive about a vertical axis through its centre of gravity, and the longer the wheelbase, the less is the disturbance produced by any given want of reciprocating balance. The difference in these respects between modern engines and those of 30, 40, and more years ago is so marked that it is no wonder the old rule of providing for the balance of two-thirds of the reciprocating masses in two-cylinder engines should at last have met with revision.

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Two Inside Cylinders

By putting cylinders inside the frames as close together as possible, locomotive designers were able to reduce the arm of the couples tending to give the engine nosing and rocking motions. The inside-cylinder arrangement was widely adopted for two-cylinder engines in this country for this reason, notwithstanding the complication and weakness of the cranked axle and despite a certain want of accessibility. Abroad, and especially in the United States, the outside arrangement of cylinders has been favoured from the outset; it has been forced on British designers of late years by reason of the increased size of cylinders. The outstanding modern example of inside cylinder design is the "Q1" class of the Southern Railway. Here 19 in. dia. cylinders with overhead piston valves are employed. Though nominally a goods engine the "Q1." is understood to have speed capabilities fitting it for passenger duties. By reason of the close proximity of the cylinders to one another it should certainly ride well at comparatively high speed, notwithstanding its short wheelbase. It is hoped that post-war conditions will afford this engine opportunities for showing its paces at the head of excursion trains to revitalised holiday resorts.

L.N.E.R. Wartime Operation

IN previous articles an indication has been given of the immensity of the wartime task of two of the British railways. It is now possible to reveal something of the London & North Eastern Railway Company's share in the burden that the railways are so successfully bearing at the present time.

The effective work done on the freight side of the L.N.E.R. operations was measured in 1942 by the enormous total of 1,360 million loaded wagon miles, or 33 per cent. more than in 1938. In 1942, 98 million freight engine miles were run, nearly 19 per cent. more than in the pre-war year.

The number of loaded wagons per train during 1942 was 24·63 compared with 21·94 in 1938, and the average wagon loads by the end of 1942 had been increased to 4·0 tons of merchandise, 10·9 tons of minerals, and 8·23 tons of all freight traffics; compared with 1938 figures of 3·18, 9·94 and 8·16 tons respectively. The freight traffic forwarded from stations, works and sidings on the L.N.E.R. system represented by the end of 1942 some 310,000 wagon loads weekly.

Passenger train mileage in 1942 totalled 53 millions or nearly 30 per cent. less than in 1938. Originating passenger journeys decreased between these years but only by 5 per cent.

The L.N.E.R. locomotive equipment available for the handling of this heavy wartime traffic consists of 6,500 units, under the control of an operating department staff numbering 88,000 men and women, including 34,000 footplate and shed staff in the locomotive department.

Impressive as are these figures for the year 1942, the results from the beginning of 1943 to the present time indicate a still higher level of L.N.E.R. achievement compared with a year ago. Loaded wagon miles have increased again by 30 millions, or 5 per cent., freight engine mileage by 2½ per cent.; and the number of loaded wagons forwarded is now regularly about 5 per cent. higher than during the corresponding period of 1942.

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Railways and Fruit Traffic

IN pre-war days the conveyance of fresh fruit was a yearly event of considerable importance to the British railways. Strawberries, gooseberries cherries, currants, plums, apples, pears, and other fruits are grown in considerable quantities in the south and west of England and in the Eastern Counties, and the distribution of the fruit to other parts of the British Isles involved the railway companies in comprehensive arrangements. There were no restrictions on the forwarding of fruit, which could be despatched without let or hindrance from the producing areas to any part of the country, with the result that many special services were necessary to permit of the conveyance of the traffic over long distances in the minimum transit time. To give the required facilities it was the practice to arrange a regular programme of special trains throughout the fruit season, in addition to which it was necessary to provide scheduled services for the conveyance of perishable traffic by ordinary goods and passenger trains.

The incidence of the war has given added importance to the home-grown fruit industry and war transport conditions have necessitated a complete revision of the distribution arrangements. The ever-growing demands on the railways in connection with the movement of war materials have made it imperative to secure the utmost economy in the user of engines, rolling stock, and staff. In these circumstances it was manifestly undesirable to permit a continuance of the uncontrolled forwarding of fruit traffic which, by reason of its highly perishable nature, demanded high-speed transits and other special arrangements which could not be justified under present conditions. The Minister of War Transport therefore decided, in exercise of the powers conferred on him by Regulation 55 of the Defence (General) Regulations, 1939, and other enabling powers, to give direction designed to provide for the distribution of the various fruits on a zonal system, thereby restricting the transport requirements and obviating unnecessary haulage. The fruits which have been affected by these orders include raspberries, strawberries, gooseberries, blackcurrants, plums, damsons, greengages, and apples, in addition to which certain vegetables such as potatoes, onions, and tomatoes have also been the subject of transport direction orders.

Generally, the procedure has been to group the various counties into a number of originating areas, and to restrict the acceptance of fruit for conveyance or reforwarding by rail from any place in any such area to places within the same area

and to any place in the scheduled destination area. Any traffic for places outside the originating area or the specified destination area may only be accepted for conveyance on production of a permit granted by or on behalf of the Minister of Food. In the case of plums, damsons, and greengages, the direction order issued in August, 1942, further restricted the forwarding of traffic to certain areas to minimum consignments of two tons gross passing between two points and consigned by one sender to one receiver. This was subsequently amended to permit senders to combine in making up a load of 2 tons to one destination, and at the same time it was agreed that other fruit or vegetables could be accepted as part lot to make up and maintain the 2-ton minimum. Later in the month the 2-ton minimum was withdrawn entirely.

It will be readily appreciated that the operation of these restrictions has resulted in considerable alterations to the flow of traffic as compared with previous years, and the advantages of the zoning schemes from a railway operating point of view are indisputable. These advantages were well illustrated in connection with the plum crop of 1942, which was one of the heaviest of recent years. The experience gained last year in connection with this traffic showed that the zonal system resulted in a tendency for large quantities of fruit to be absorbed locally by the canning and pulping factories, with a corresponding reduction in rail haulage, an increase in wagon loads, and a quicker turn-round of wagons. The increased tonnage per wagon was also assisted by the imposition of the 2-ton minimum in the case of plums forwarded to many parts of the country. Some indication of the extent to which the altered arrangements enabled the railways to secure valuable economies in wagon user is afforded by the fact that at one important plum centre the forwardings on the peak day of the 1942 season amounted to 150 tons loaded in 54 wagons compared with the pre-war record of 155 tons loaded in 90 wagons. Quite apart from the relief thus afforded to the rolling stock position, there was the added advantage of the avoidance of congestion of the limited siding accommodation available at many country stations. The higher prices now obtained by fruit growers has resulted in considerable quantities of fruit being forwarded to the markets by passenger train services but, on the other hand, the zonal system has effected a considerable reduction in the thousands of small consignments which formerly passed to all parts of the country, mainly in connection with the mail order business.

The experience gained last year proved beyond doubt that the zoning of fruit and vegetable traffic can be so arranged as to meet the legitimate requirements of the public for a fair distribution of fresh fruit and vegetables and at the same time secure valuable transport economies in the national interest. It is not always an easy matter to issue a direction governing the transport of fruit. Supplies fluctuate considerably according to weather conditions and last year, for instance, it was necessary to make various adjustments to the arrangements laid down in the original direction for plums, notably in connection with the despatch of traffic from certain areas to Scotland. The plum crop again promises to be heavy and the experience gained last year will doubtless be borne in mind in framing the direction for the disposal of the 1943 crop to the best advantage.

Railway Road Interests in the U.S.A. and Canada

WITH few exceptions, the road fleets which are owned, operated, or co-ordinated with American and Canadian railways appear small in comparison with the rail and road co-ordination which has been achieved in this country. On the other hand, it must be borne in mind that public passenger road transport has not developed in the United States to anything like the extent it has in Great Britain. There is comparatively little railway-owned, or railway-associated, through haulage of goods by road. In all, 5,249 motorbuses and 4,257 motor lorries were owned by, or worked in conjunction with, the North American railways at the end of last year. These figures thus applied before the recent difficulties of fuel distribution for non-essential road transport, and the need for rubber conservation, resulted in substantial wartime curtailments of activities.

Of just over 150 undertakings, the largest individual railway associated owner of buses was the Pacific Greyhound lines, of the Southern Pacific Company, which had 760 vehicles, and the largest individual owner of lorries was the Pacific Motor Trucking Company (396 vehicles) also of the Southern Pacific Company. Other large bus fleets were those of the International Railway Company (636 vehicles), Pennsylvania Greyhound Lines (551 vehicles), and the Pacific Electric Railway Company (388 vehicles). The second greatest owner of lorries was the Burlington Transportation Company (Chicago, Burlington & Quincy Railroad) which had 305 lorries as well as 168 buses. The New England Transportation Company (New York, New Haven & Hartford Railroad), with 254 lorries and 147 buses, came next. A list relating to railway-owned, operated, or co-ordinated road transport, and showing ownership and number of buses or lorries, appears on page 118.

Crossing the Alps

UNTIL a comparatively few years ago, very long railway tunnels were an exclusive feature of Alpine regions, and even to this day the only other tunnel in the world exceeding 8 miles in length is the great Apennine tunnel on the Florence—Bologna *direttissima*, which not only exceeds in length all but one of the famous tunnels through the Alps, but also possesses the dignity of being the longest double-line tunnel in the world. Although at the present time it ranks but fifth in order of length, the Mont Cenis was the pioneer of very long railway tunnels, and its site was actually selected as early as 1840 as the most suitable for a railway tunnel to afford communication between France and Italy. The proposal was not seriously entertained until 1852, and four years later the Government of the Kingdom of Sardinia undertook the work. When it is recalled that hand-drilling the holes for the blasting charges was the only method then available, the tremendous nature of the task is better appreciated. While work was still in progress the Kingdom of Italy was formed and Savoy was ceded to France, so that, when finished, the Mont Cenis tunnel joined two great countries. Experience gained in the prosecution of this work, and the introduction of machine drilling, made the way very much easier for future enterprises.

In preparing our table (reproduced opposite) we have experienced considerable difficulty by reason of the lack of agreement between various official and semi-official sources of information. In one case—that of the Mont Cenis—this may be explained chiefly by the fact that the tunnel was lengthened on the French side in 1881 because of land movements, and at the Italian end a slight change of course accounts for a further small difference. Thus the original length of approximately 12,820 metres (7 miles 1,700 yd.) has been increased to the present figure of about 13,668 metres (8 miles 868 yd.). Then, in regard to the Simplon, the old and new tunnels are some 20 metres different in length, and the newer tunnel is the longer. Apart from such accountable differences, the fact remains that some disagreements in official returns are not understandable.

Before any of these great tunnels was pierced, the Alps had been crossed by two main-line railways, the first of which was that from Vienna to Trieste. This line, the famous Semmering Railway, a section of the Südbahn, was built in 1848-1854. Its general plan, with a main tunnel 1,565 yd. long, in which is the highest point of the railway (2,943 ft.), and its bold engineering, were in advance of their time. The length of the pass section, from Gloggnitz to Murzzuschlag, is 26½ miles. There are 15 tunnels and 16 viaducts, all of brick; the maximum gradient is 1 in 40. The line accomplishes an ascent of 1,539 ft. by means of gigantic loops in the lateral valleys. The Brenner Railway, constructed in 1863-1867, is the only railway which crosses the main chain of the Alps without a tunnel under the pass. It traverses the Brenner-Sattel gap at 4,498 ft. The steepest gradient between Innsbruck and the summit is 1 in 40. This line, which was opened on August 24, 1867, is a double track, now worked electrically. It has 27 tunnels, of which the longest is only 875 yd.

Railway communication between France and Italy has been effected without crossing the Alps, by means of the coast line along the French and Italian Rivieras. On the French side the construction of a line from Marseilles to Toulon and the Var (which then formed the frontier with the Kingdom of Sardinia) was undertaken in 1856. It was decided by the Convention of May 7, 1862, that the line should be constructed as far as Ventimiglia by the French railways. By 1863 the line had reached Vence-Cagnes (now Cagnes-sur-Mer), and on October 18, 1864, it was opened to Nice, and in 1866 to Monaco, but was not completed to Ventimiglia until 1872. On the Italian side the railway had reached Ventimiglia from Genoa in 1865.

All the main Italian approach lines to neighbouring countries are electrified, and their dislocation was the principal objective of the heavy R.A.F. attack of July 15, when three transformer and switching stations in the neighbourhood of Bologna were attacked, namely, San Polo d'Enza, Reggio Emilia, and Bologna-San Viola. Another station attacked was that of Arquata Scrivia, 20 miles north of Genoa.

Sketch map of the main lines of railway communication linking Italy with northern Europe. In all but one case it is necessary to traverse the Alps, either by lengthy tunnels, or through one of the several passes

Tunnel and length	Location	Railway	Territory	Track	Dates of boring		Approx. cost per lin. yd.	Notes
					Start	Finish		
SIMPLON ... ... (12 mi. 560 yd.)	Brigue (Switzerland) to Iselle (Italy)	Swiss Federal and Italian State (worked entirely by Swiss Federal Railways)	Switzerland and Italy	Two single-track horseshoe tunnels, 16 ft. 5 in. wide × 19 ft. 6 in. high	Aug., 1898	Feb. 24, 1905	£ 148 (first tunnel)	Opened May 30, 1906; passing station half-way through-second tunnel begun December, 1912, delayed by the war, and completed December 4, 1921; 3-phase electric traction from opening in 1906; standard Swiss single-phase 1930.
APENNINE ... (11 mi. 879 yd.)	Vernio to Castiglione dei Pepoli on the Florence - Bologna *direttissima*	Italian State	Italy	Double-track tunnel	Jan., 1920	Dec., 1929	—	Longest double-line tunnel in the world; passing station half-way through; formally opened April 22, 1934, electric traction.
GOTTHARD ... (9 mi. 547 yd.)	Göschenen to Airolo	Swiss Federal	Switzerland ...	Double-track horseshoe tunnel; 26 ft. 3 in. wide × 24 ft. 7 in. high	June 4, 1872	Oct., 1880	143	Workmen met in middle February 29, 1880; first locomotive ran through, December 24, 1881; opened May 27, 1882; Gotthard Railway Company taken over by State, May 1, 1909; electric traction introduced September 14, 1920.
LÖTSCHBERG ... (9 mi. 132 yd.)	Kandersteg - Goppenstein on the Spiez-Brigue line	Bern-Lötschberg-Simplon (Bernese Alps Railway)	Switzerland ...	Double-track tunnel	Oct. 1, 1906	March 31, 1911	—	Masonry completed April 22-1912; opened July 15, 1913, electric traction from opening; only day traffic until September 18, 1913.
MONT CENIS ... (8 mi. 868 yd.)	Modane (France) to Bardonecchia (Italy)	Italian State	France and Italy	Double-track horseshoe tunnel; 26 ft. 3 in. wide × 24 ft. 7 in. high	Aug., 1857	Dec. 25, 1870	226	Machine drilling introduced 1861; tunnel opened September 17, 1871; electric traction 1920.
ARLBERG ... ... (6 mi. 639 yd.)	St. Anton to Langen on the Innsbruck-Bludenz line	Austrian Federal ...	Austria ...	Double-track tunnel 25 ft. 3 in. wide	May, 1880	Nov. 19, 1883	108	Opened September 20, 1884; electric traction introduced April 29, 1925.
TAUERN ... ... (5 mi. 555 yd.)	Böckstein (near Badgastein) to Mallnitz	Austrian Federal ...	Austria ...	Double-track tunnel	July 6, 1901	July 21, 1907	—	Bottom drifts met July 21, 1907; tunnel opened, July 5, 1909; electric traction introduced December 15 1933.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Indian Rolling Stock Livery

c/o Martins Bank,
16, Whitehall,
London, S.W.1. July 18

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have just read the paragraph on page 55 of your July 16 issue on Indian rolling stock livery, and think that certain inaccuracies should be corrected. The East Indian livery is green with cream upper panels, as on the Duke of Sutherland's private coach, whilst the Bengal-Nagpur Railway livery is a gamboge brown. The Bengal & North Western Railway had different colours to differentiate the various classes.

The various other lines may have used red, but they each used a very definite and individual shade. The Great Indian Peninsula was a Post Office red with highly glossed finish, whilst the North Western used more of a dull rose colour without a glossy finish.

Yours faithfully,
O. S. M. RAW,
Major, R.E.M.E.

Sailways: Sinai and Dundee

L.M.S.R. District Engineer's Office,
General Station,
Perth, July 16

TO THE EDITOR OF THE RAILWAY GAZETTE

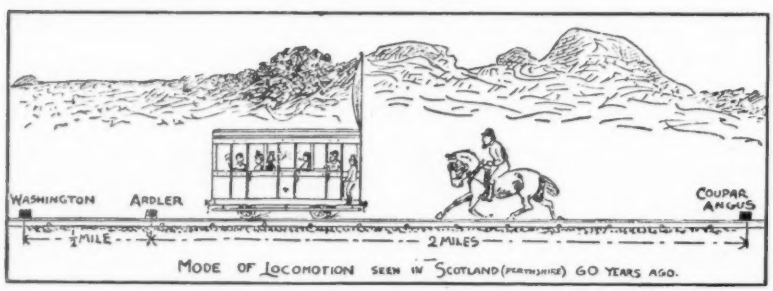
SIR,—The recent article on sail propelled trollies interested me, as, on the military railway across Sinai in the last war, I sometimes used a sail on a ball-bearing trolley with considerable success—and probably much danger, it being no joke stopping and unstepping a mast in the face of a train appearing round a curve.

I am enclosing a copy of the Railway Supplement to *The Weekly News* (Dundee) for November 5, 1898, as it contains various interesting details about early use of sail power in the Dundee neighbourhood. In the illustration on the first page, the sail seems to be propelling fare-paying passengers.

Yours faithfully,
IAN R. FRAZER

The references to which our correspondent refers are as follow:—

"The Dundee & Newtyle line was completed and opened in 1831. The first train, or rather carriage, for it was but a single coach, was run over the line on December 31, 1830.



MODE OF LOCOMOTION SEEN IN SCOTLAND (PERTHSHIRE) 60 YEARS AGO.

This was rather an eccentric railway, and its engineer, Mr. Holden, was evidently an enterprising gentleman. The railway was carried over the Law Hill, passing through a tunnel when near the summit to the valley of Strathmartine beyond. From the station the carriages were drawn up and lowered down the steep incline by a stationary engine. On the journey there were two other stationary engines for pulling the train up inclines. For the first two years the traffic was worked by horse power along the level sections. William Whitelaw, the horse driver, was a very ingenious man in his day. To accelerate the speed and lighten the strain on the horse he extemporised a sail out of a wagon sheet. He hoisted his canvas on a pole in front of the carriage, and set it to the favouring breeze as a mariner trims his sail to catch the gale. The sail helped him along wonderfully, but the locomotive engine made by the Messrs. Carmichael two years after the line was opened took the wind out of William's sails."

"The illustration represents a system of locomotion which was often resorted to, always during windy weather, from the opening of the extension of the Dundee & Newtyle Railway to Coupar Angus and Eassie in 1837 till about 1841, when the working by horse was superseded by steam power. The picture shows a railway passenger carriage propelled by means of a tarpaulin lashed to the end of the carriage. The wind acting on the large surface, forced it forward at a considerable speed—varying from 10 to 20 miles an hour, according to the strength of the wind. The horse following took up the haulage if the wind ceased or proved contrary. When this system was discontinued a locomotive was specially built for this part of the line. It was named the *Strathmore*, and wrought the traffic between Newtyle and Coupar Angus from 1841 to 1848, when the line was opened between Perth and Forfar under the name of the Scottish Midland. It seems rather strange that these two forks of railway, made almost sixty years ago, are now on the direct route between London and Aberdeen by the West Coast route—from Eassie to the old Meigle Station, and from Ardler Junction to Coupar Angus. For the illustration and particulars we are indebted to Mr. Wm. M'Intosh, joiner, Meigle, who well remembers the time when the old system of locomotion was in vogue."

Railway Control Agreement

25, Victoria Street,
S.W.1. July 20

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The Treasury has addressed a communication to a member of the British Railway Stockholders Union stating that it can hold out no prospect that the Government will be willing to reconsider the terms of the Railway Control Agreement.

This attitude was to be expected and follows that already put before the House of Commons, in answer to questions. But it will be understood that it is in no sense an answer to the union's agitation for a revision of the agreement. Nor does the union accept this bald *non possumus*, in view of the fact that great blocks of ordinary shares are denied any dividend while record revenues are being earned. Some 955,000 stockholders have still to make their influence felt and they intend that the public shall realise that the Treasury has dealt them a very raw deal.

In 1921, an Act of Parliament, after full consideration of all the factors, political and economic, made a considered bargain with a body of investors. In spite of the Treasury's pronouncement, railway stockholders ask that this bargain shall be honoured.

Yours faithfully,
THE BRITISH RAILWAY STOCKHOLDERS UNION LIMITED,
ERNEST SHORT,
General Secretary.

Luggage on the Roof

Essex House, Essex Street,
Strand, W.C.2. July 13

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The North London Railway timetables for April, 1859, of which Canon R. B. Fellows has kindly given me a sight, contains the following picturesque announcement:—"All the London & North Western up trains stop at the Hampstead Station to collect tickets. Passengers can alight at the ticket platform, and cross over to the North London trains.

[It must have been a wonderful sight to see an up train collecting tickets.]

"The luggage of those passengers who may intend to alight at Hampstead Road Station (Camden) for the North London trains must be placed in the guard's van and not on the roof of the carriage."

This quotation reminds me that my mother (1837-1929) after a lapse of over 70 years used to recall the trouble and anxiety she had as a girl early in the eighteen-fifties in getting her luggage unstacked from the roof, when she alighted at Harrow from a train from Manchester in order to drive to a school at Hanwell.

It would be interesting to know when that vestigial inheritance from coaching days of stacking luggage on the carriage roof was finally abandoned.

Yours faithfully,
KENNETH BROWN

The Scrap Heap

A. P. Paparin, an engine driver on the Yaroslavl Line, in the Soviet Union, has covered 717,500 miles of driving the same passenger-train locomotive in a period of 15 years. According to the *Soviet Monitor* of July 7, he has looked after his locomotive so well that it has not required major repairs throughout this period, and is in excellent condition.

* * *

Since its inception over 20 years ago, the Betterment & Suggestions Board of the Victorian Government Railways has considered 44,000 suggestions submitted by railway employees, over 7,000 of which have been adopted. Awards of up to £400, including a number of over £100, have been paid. Among the ideas accepted, many relate to the elimination of waste.

* * *

Evidence that the excellent work of the British railways in war conditions is appreciated in Australia is forthcoming in the issue of *The Victorian Railways News Letter* for May last, which describes the publication "Transport Goes to War" as "an astonishing, most revealing, booklet on some of the magnificent work of British transport utilities—rail, road, and canal—during the present war." Substantial extracts from the booklet are quoted by *The Victorian Railways News Letter*, which is to reprint selections also in forthcoming issues.

* * *

To satisfy himself that the tiny engine, with an eight-inch tender, of a boy's model railway in a Sussex back garden was not wasting coal, a Ministry of Fuel official made a 100-mile journey to inspect it—and decided that it was not, according to the *Sunday Express*. The engine consumes fuel at the rate of a glassful of coal an hour. The coal used is Welsh (which the official agreed is unrationed), and the cost of the glassful is less than a farthing.

Sixteen-year-old Donald Morse is the owner of the railway, which has been operated only four times this year, and he lives at Bramlands Lane, Woodmancote, Sussex, which is nearly 50 miles from London. Somebody saw the railway being operated and told the Ministry of Fuel of the "waste of coal." Hence the journey of the inspector from London.

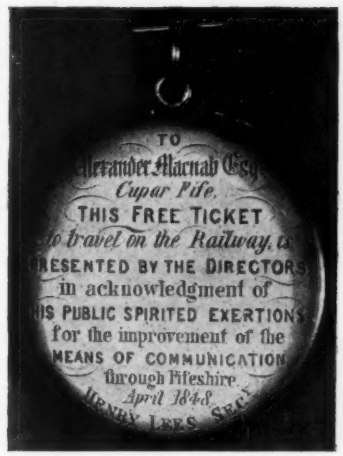
"My son runs it to amuse his friends," the boy's father, Mr. R. H. Morse, told the *Sunday Express*. "It has taken him three years to construct. I have encouraged him because I believe the boy has great mechanical genius," he added.

Woodmancote is now asking—was the official's 100-mile journey really necessary?

* * *

Scottish Railway Relic

There can be but few tangible recognitions by early railway companies of their debt to coaching enterprise in establishing the regular road passenger traffic which provided the basis of early railway traffic, and therefore particular interest attaches to a souvenir of the Edinburgh & Northern Railway which was presented recently to the Divisional General Manager, Scottish Area, L.N.E.R., by Mrs. Florence M. Watson, of Edinburgh. It is a silver medallion pass presented by the directors of the Edinburgh & Northern Railway Company in 1848 to her great grandfather, Mr. Alexander Macnab, of Cupar, Fife, "in acknowledgement of his public-spirited exertions for the improvement of the means of communication throughout Fifeshire."



Before the time of Mr. Macnab's activities, the only public conveyance running in Fife is understood to have been a two-horse diligence which ran between Newport and Pettycur (near Kinghorn), thus making a connection between the ferries over the Tay and the Forth. In those days, however, the ferry crossings were made by luggage boat or open pinnace, when the tide was convenient, and consequently it was not uncommon for travellers to have to put up for two or three days at the inn at Pettycur waiting for a passage. In 1810, Mr. Macnab, of the hotel at Cupar, introduced four-horse coaches on this and other routes, and set about improving the ferries by showing that the Forth could be crossed at all times of the tide and in every state of the wind. These great improvements in travelling facilities throughout the county and over the adjoining estuaries paved the way for the subsequent opening of the Edinburgh & Northern Railway in 1846; thus to Mr. Macnab more than anyone were the public of Fife indebted for their travel conveniences.

Accompanying the medallion was the original letter written by the Secretary of the Edinburgh & Northern Railway Company on May 11, 1848, sending the pass to Mr. Macnab. We learn that both relics will be deposited eventually in the museum of railway exhibits kept at the Scottish Area Headquarters of the L.N.E.R.

* * *

Tailpiece

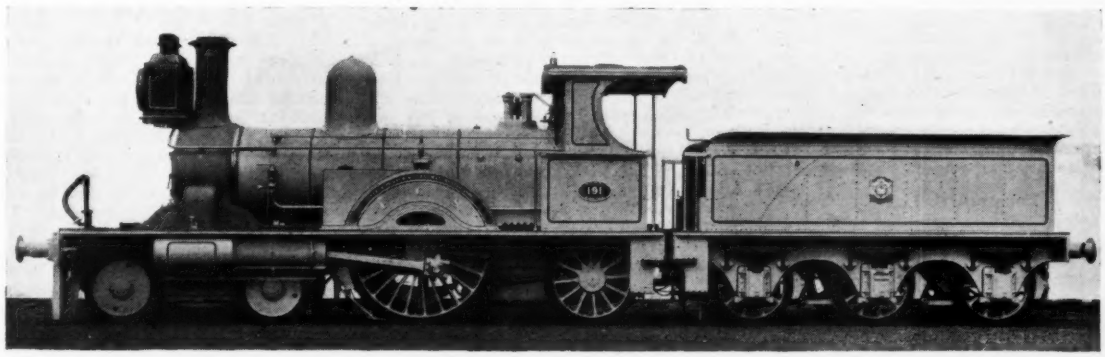
(The L.N.E.R. loaded wagon mileage in 1942 *was* 1,360 *million, or* 33 *per cent. more than in* 1938, *and is still increasing*

In spite of sirens blowing hard,
And bombs on terminus and yard,
And crumpled rails and other blows,
The wagon mileage rose and rose.

In spite of Hitler and his hate,
From happy pre-war 'thirty-eight
To 'forty two, as all may see,
The rise per cent. was thirty-three.

In spite of darkened skies and lands,
And work increased for fewer hands,
The mileage soars to records new,
The guns must pass—and pass they do.

E. C.



4-2-2 type passenger locomotive, Buenos Ayres Great Southern Railway. Built by Beyer, Peacock & Co. Ltd., in 1890. *Cylinders* 16 *in.* × 24 *in. Driving wheels* 6 *ft.* 6 *in. dia. Boiler pressure* 160 *lb. per sq. in.*

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Capital and Betterment Estimates

The estimated expenditure on capital and betterment works of the South African Railways and Harbours for the year 1943-44 is £8,792,518. Of this amount, £5,590,259 is to be charged to loan and betterment funds, and £3,202,259 to renewals fund and working votes. The allocation of the expenditure is as follows :—

From Loan and Betterment Funds

	£
Railway construction	56,919
New works	2,963,451
Rolling stock	604,164
Road motor services	5,500
Harbours	1,627,625
Airways	700
Working capital	31,900
Unforeseen works	300,000
	£5,590,259

From Renewals Fund and Working Votes

	£
New works	1,074,331
Rolling stock	1,875,712
Road motor services	209,668
Harbours	42,548
	£3,202,259

UNITED STATES

Great Lakes Ore Traffic

In the early part of the present year, the ice on Lake Superior was so thick that all attempts failed to break through by April 17, the date at which it was hoped to begin ore shipments. Last year 8,650,000 tons of ore had been shipped by May 1, and this year's delay in opening will make it difficult to attain the seasonal aggregate tonnage of shipments which has been set as a goal by the Government. Early in April, the Strait of Mackinac, between Lakes Michigan and Huron, was opened briefly by the ice-breaking efforts of the wagon ferry *Ste. Marie*, but a blizzard closed the strait and locked 45 vessels in the ice, as well as preventing the *Ste. Marie* from proceeding to the Soo locks to open up the route between Lake Huron and Lake Superior. The commencement of traffic actually took place at the end of April, three weeks later than last year.

New Wagon-Loading Record

For the fourth successive year, the record for average loading of wagons in the United States was broken in 1942, when for the first time it exceeded 40 tons by a fractional margin. In 1942, 1941, and 1940, the respective average loadings were 40·1, 38·2, and 37·7 tons. These are short tons of 2,000 lb. ; the corresponding totals, in tons of 2,240 lb., are 36·0, 34·2, and 33·9 tons. American wagon stock, of course, is exclusively of high-capacity bogie types. These excellent figures are partly the result of orders of the Office of Defense Transportation, laying down minimum loadings for wagons, and partly due to the co-operation of shippers and consignees in securing maximum efficiency of loading.

Locomotive Loans

A special commendation has been earned from the Office of Defense Transportation by the Duluth, Missabe & Iron Range Railway for stripping itself practically of motive power during the winter months of 1942-43 to ease the traffic burden of some of the western roads. The D.M. & I.R.R. traffic is almost exclusively in iron ore, which it carries down to the Great Lakes for shipment, and during the winter period, when the lakes are frozen, this traffic is at a standstill. During last winter, therefore, it leased six locomotives to the Denver & Rio Grande Western Railroad, seven to the Southern Pacific, four to the Great Northern Railway and three to the Western Pacific Railroad, until its own ore-carrying business recommenced at the end of May.

Railway Employees' Safety Contest

Figures have been published by the National Safety Council showing the results of the inter-railway competition in the safety of employees during the year 1942. Once again the Union Pacific Railroad heads the list of railways of which the employees work an aggregate of over 50,000,000 man-hours yearly. The U.P.RR. record was one of only 3·32 casualties (killed or injured while on duty) to every million man-hours worked, or 43 per cent. below the average rate—a remarkable achievement in the strenuous operating conditions of wartime, even though the figure of 3·32 was higher than that of 2·78 for 1941. Second came the Chesapeake & Ohio Railway with 4·23 ; and third, the Norfolk & Western Railway, with 4·26. It may be added that the Union Pacific Railroad train-accident rate was 48 per cent. below the general U.S.A. average—4·05 to every million locomotive-miles, as compared with the mean of 7·99 for all American lines.

Railways working from 20,000,000 to 50,000,000 man-hours annually were headed by the Michigan Central Railroad, with a casualty rate of 3·94 for every million man-hr. Of lines working 8,000,000 to 20,000,000 man-hr., the Duluth, Missabe & Iron Range Railway had a fine record with 2·55 ; in the 3,000,000 to 8,000,000 group, the Bessemer & Lake Erie Railroad came first with a rate of 4·41 ; but the best achievement was in the 1,000,000 to 3,000,000 man-hr. group, in which the Lake Superior & Ishpeming Railroad had a clean sheet. The Pullman shop group did equally well, for in its six shops, working together 7,108,052 man-hr. during the year, there was not a single injury resulting in death or lost time. A good record was maintained also by the Pullman operating groups, in which New York came first with a casualty rate of 1·35 ; St. Louis second with 2·48 ; and Chicago Central third, with 2·62.

(*See editorial note, page* 102)

ITALY

Railway Traffic Development

Traffic on the Italian State Railways is stated to continue to show an upward trend. The number of passengers, including holders of season tickets, amounted to 285,000,000 in the year ended June 30, 1942, representing an increase of 70½ per cent. over the 1938-1939 figure, which was 167,000,000 passengers. In the same period passenger-kilometres rose from 11,773,000,000 to 21,932,000,000, an increase of 86·3 per cent. ; the goods traffic increased by 36·7 per cent. ; and the rise in *tonnes*-kilometres was 98·4 per cent.

At the end of 1942 the number of goods wagons owned by the Italian State Railways was 136,977, compared with 131,360 a year previously. Measures taken to limit the rail conveyance of goods, by increased use of shipping and road services, resulted in a saving averaging 1,130 wagons a day for the past year. There was an increase in the average railway wagon load to 6½ metric tons, against the 1941 average of 6 metric tons.

Altered Station Names

In addition to the changes of station names recorded in *The Railway Gazette* of July 16, page 60, the following alterations have been made :—

Giarre-Riposto Station on the Messina-Catania main line (19 miles to the north of Catania Central Station) has become Jonia. It is the northern junction with the circular railway (owned by the Ferrovia Circumetnea of Catania).

Napoli-Smistamento has been renamed Napoli Traccia. It is the junction and goods marshalling yard to the east of Naples, where the main lines from Rome (*via* Cassino), from Foggia, and from Salerno meet.

San Lorenzo al Mare has been re-named San Lorenzo Cipressa. This station is on the Genoa-Ventimiglia main line 11 miles to the east of San Remo.

San Marco d'Alunzio-Torrenova halt, on the Messina-Palermo main line, has been converted into a station but the name is unchanged. The station is 63 miles to the west of Messina Central Station.

SWITZERLAND

Tunnel Collapse

As a result of the collapse on February 7 last of a portion of the La Croix single-line tunnel, 2·97 km. (1·84 miles) long, between St. Ursanne and Courgenay, a 15·5-km. (9·6-mile) section of the Delémont-Delle line (formerly part of a main route to Paris and Boulogne) was isolated from the rest of the Federal system, together with the privately-owned 14-km. (8·7-mile) Porrentruy-Bonfol Railway, a steam-worked line connecting at Pfetterhausen with the Alsace-Lorraine system. The high-tension supply line through the tunnel was cut off, and as one small tank engine of the Porrentruy-Bonfol line represented the only motive power available in the isolated area, two tank locomotives were conveyed on tractor-hauled road lorries (of the type specially designed for transportation of goods wagons) over the Rangiers pass to Porrentruy, to maintain a local service in connection with special Post Office buses conveying passengers and baggage between Glovelier and Courgenay.

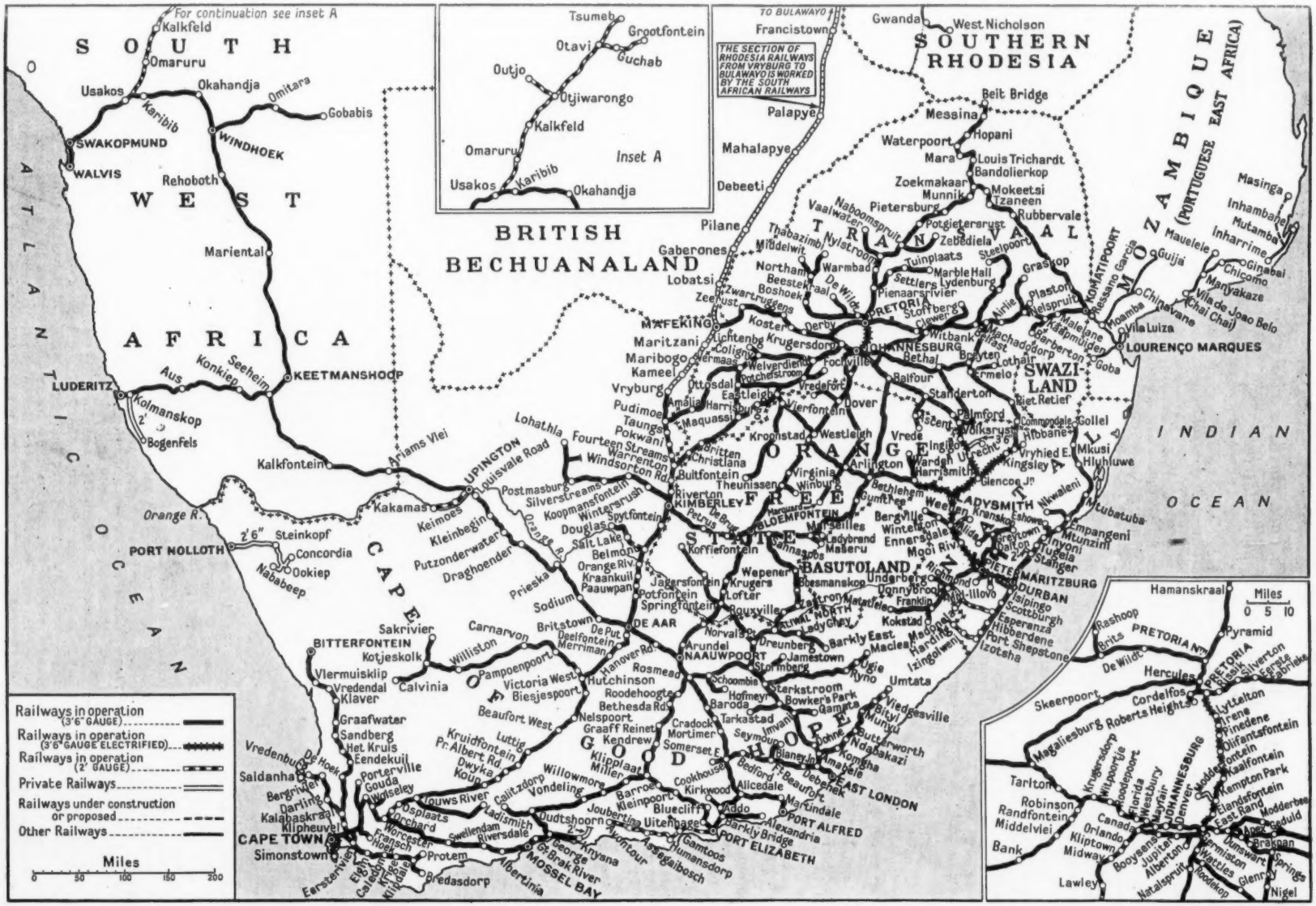
On February 20, electric traction was resumed between Courgenay and Boncourt, when a temporary electric-supply line had been installed over the mountains ; and on March 25 it was announced that, by agreement with the German State Railway, *petite vitesse* freight would be routed *via* Basle-Pfetterhausen-Bonfol to Porrentruy. Express goods, milk, and livestock are conveyed by lorry services over the pass.

JAPAN

Receipts and Traffic

Railway receipts in Japan during the year ended March 31, 1943, showed a tendency to decline, a fact stated to be consonant with the general economic conditions of the country. Early in the last quarter of the fiscal year in question passenger fares were increased ; and it is said that the intention thereby to reduce passenger traffic has been realised. As far as the conveyance of goods is concerned, the railways took over a substantial share of the traffic which formerly went by sea—an indirect confirmation of the stringent shortage of tonnage, and the proportion of lower-classed bulk goods to total railway goods traffic has been increased correspondingly. This partly explains the fact that, although the quantity of goods conveyed by rail exceeded the expected total, receipts did not increase in proportion.

XUM



A new railway map of the Union of South Africa and adjacent territories

Trade and Transport in South America

Railways built by British enterprise have played a vital part in the development of the countries

ON May 28, an address was delivered to the Western section of the Institute of Transport at Bristol, by Mr. C. E. W. Duley. The first part of the address was devoted to events before 1914, and the author said that in South America transport undoubtedly preceded the huge trade which had developed during the last sixty or seventy years and British enterprise, technical skill, and capital provided most of it.

About the middle of the last century, there arose the problem of feeding Great Britain's rapidly increasing industrial population and of satisfying the expanding demand for the raw material required by the factories which were superseding agriculture in many parts of the country, especially in the northern and midland counties. South America was a vast domain of natural wealth, but before it could be made productive, land transport and ocean shipping were indispensable.

There are ten republics in South America and British railways have been built in all of them; many of the lines are still in British ownership. Some of the railways surmounted the most formidable obstacles. In Peru, British railways constructed sixty-five tunnels, sixty-seven bridges and sixteen zigzags to climb just over 100 miles from the coast to an altitude of 15,800 ft., with the object of tapping the great mineral wealth of the Andes. The same range was pierced between Chile and Argentina, where a tunnel was driven two miles through the mountains at an altitude of 10,500 ft., thus completing the first trans-continental line in South America, linking Buenos Aires with Valparaiso. In Venezuela, the La Guaira-Caracas electrified railway climbs over 22 miles from the coast to a height of 3,000 ft. above sea level, without the aid of racks. Mr. Duley reminded his listeners that British enterprise in Brazil supplied the prosperous San Paulo Railway which starts from the coffee port of Santos and in less than 50 miles, with the help of cable over the stiffest sections, climbs 3,000 ft. to San Paulo—the fastest growing, busiest, and third largest city in South America. By far the most important railway activity took place in Argentina, where some £260,000,000 is invested in British-owned railways—nine in number, with a total length of over 15,000 miles.

Nearly all the railway development in South America, he said, took place before 1914, and throughout the preceding half century Britain's foreign trade progressed concurrently with the expansion of the railways. In the same period, the British Merchant Navy grew to dimensions which far surpassed the tonnage operated by any other nation and plied a vigorous and profitable trade between the other continents of the world and the numerous South American ports.

But railways, shipping and ports do not represent the whole story. British companies laid cables across the South Atlantic to Brazil, Uruguay and Argentina and, by carrying land lines over the Andes, connected London telegraphically with Chile, Peru, and the Pacific coast of South America. Other industrial activities which followed closely in the wake of the railway expansion were meat packing plants, most of them in the River Plate area and many of them British undertakings, which, altogether, are able to deal with 25,000 head of cattle or 50,000 sheep a day.

City transport, too, received full measure of attention from British interests. Tram companies, originally built with British capital, were operated in most of the large cities and the first underground railway in South America was the work of British enterprise in the city of Buenos Aires. Water, gas and drainage works, though less numerous than other types of public utilities, helped materially to swell the volume of trade between Great Britain and South America.

It would readily be appreciated, said the author, that the vast network of public utility undertakings in British ownership—estimated to have entailed capital expenditure of as much as £1,000,000,000, practically all of which was raised in the London money market—was, in effect, the foundation on which the export and import trade of the United Kingdom was built. Argentina alone, he said, normally took about 2,000,000 tons of British coal yearly, much of it for use by the British-owned railways and for bunkering ships, and the orders received by the manufacturers of rails, locomotives, carriages, wagons, diesel railcars, electrical equipment, and other manufactured supplies required for the operation of railways, trams, ports, gas and water works ran into many millions of pounds annually. Payment was made in the form of chilled beef, wheat, maize, coffee, wool, bananas, hides, cotton, copper, tin, and petroleum, to mention only the outstanding commodities, without which the high standard of living enjoyed by the people of the United Kingdom could never have been attained.

During the period before the war of 1914-19, in addition to creating a great export trade, Great Britain's public utility investments in South America also brought in a very large return to hundreds of thousands of investors in this country, including practically all the large insurance companies, by way of debenture interest and dividends. The advantages were by no means all on one side. As a producer of food and raw materials, South America had today few rivals, being the world's leading exporter of beef, maize, linseed, and coffee; second on the list of sources from which are obtained wheat, copper, tin and cocoa; and the third largest exporter of petroleum and wool.

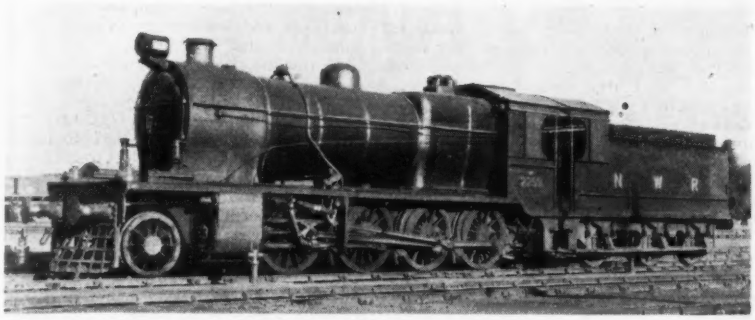
In the second part of his address, Mr. Duley referred to developments which had taken place since 1914, the war having brought about great changes in Great Britain's economic position in South America. So far as transport was concerned the most serious development gave rise to what had long since become a major problem—the advent of the road motor and its effect upon rail transport the world over. Although road services, passenger and goods, had invaded the length and breadth of the South American continent, to the serious detriment of the railways, very few of them, he said, were the result of British enterprise. Not only were the public road services largely in other than British ownership and management, but the buses, motor coaches, and lorries had been, almost in their entirety supplied by other than British manufacturers. In Argentina alone, less than 5 per cent. of the road motor equipment comes from Europe and a smaller percentage still was purchased in Great Britain. When it was realised that, formerly, the Argentine railways, predominantly British-owned, handled nearly 50,000,000 tons of goods traffic and more than 130,000,000 passengers yearly, a considerable part of which business had gone over to the roads before the war, it would be appreciated that the failure of British manufacturers of road motors to secure the territory which could no longer be held by the railway equipment manufacturing industries, materially affected Great Britain's trade position in South America.

The author described the change which came over British transport interests, particularly the railways, during the between-war years, from 1914 to 1939, and said this was principally because Great Britain did not apply the same vigorous enterprise to road motor transport as she had done previously to railways. We were now confronted with a similar situation, this time arising from the development of air transport, the effects of which promised to be more far-reaching than those brought about by the road motor. True, road competition was practically confined to railways and had little, if any, detrimental effect on ocean steamship business. Air transport, however, would not only influence railways, but international shipping as well. Indeed, there were sufficiently convincing indications that not only would a certain amount of long-distance railway passenger and higher-rated merchandise traffic in South America go by air, but some of the South Atlantic shipping business would also tend to travel by this newer form of transport. The governing considerations would not be solely speed and scales of charges. There might be fundamental changes in the routing of traffic of which the ultimate consequences could not be foreseen. For example, traffic to Peru, which formerly went *via* the Panama Canal or to Buenos Aires and thence by the international rail routes through Bolivia or Chile might take a direct and shorter route by air, *via* British Guiana, dispensing entirely with both sea and rail. Before the war, South America was one of the most advanced continents as to international air services. The U.S.A., Germany, France, and Italy operated international air lines, some from Europe, others from U.S.A., but there was no British airway. Mr. Duley concluded by saying that fortunately British interests were now alive to the importance of the matter, but more was heard about the urgency of Empire services than of safeguarding all-world air routes. Recent changes in the British Overseas Airways Corporation suggested that a vigorous policy of commercial air transport expansion was impending.

PRISON FOR SABOTAGE ON RAILWAY.—In Kirkcudbright Sheriff Court on July 19 a man was sentenced to 30 days' imprisonment on pleading guilty to having, on the L.M.S.R. between Dalbeattie and Castle-Douglas, at a curve near the viaduct over the River Urr, placed stones on one of the rails on the down line, which were struck by the engine of a passenger train travelling in the Castle-Douglas direction. It appeared that the driver felt the engine lurch on the curve, and that later fragments of stone were found on the line.

Locomotive Working on the N.W.R., India—II*

Some notes on the variously graded main-line broad-gauge sections of the system and the locomotives used on them



"HG/S" class 2-8-0 locomotive, used for all classes of work on the various lines in category 3

TURNING to category (2) the Lala Musa-Rawalpindi-Peshawar main line, 205 miles in length, we find long 1 in 100 grades and many sharp curves, as the line traverses the outer foothills of the Himalayas. Until two or three years ago even the mails were worked exclusively by 0-6-0 "SG/S" class engines despite the comparatively high speeds that had to be maintained. Double heading was not uncommon and pushers were also used on some sections, the same class of engine usually officiating. Now, however, the very successful "WL" medium Pacific—the latest of its type†—is working the faster trains over this section. In the 56 miles from Jhelum to Kaliamawan this line climbs from 765 ft. to 1,828 ft. above sea level, or through 1,063 ft.

The most interesting of the three categories is, however, No. 3. To work heavy broad-gauge trains over long lengths of line with grades varying between 1 in 25 and 1 in 55 calls for powerful and reliable locomotives. Various types, including Garratt and Mallet articulated engines, have been tried over a number of years on the different sections, and until comparatively recently an American-built 2-8-2 tank type was used almost exclusively for banking on the 1 in 25-55 grades on the Bolan route to Quetta. On the Ambala-Kalka section, with its 1 in 40 grades, the multiple use of SG/S 0-6-0—sometimes two at head of the train and one pushing—predominated. Now, however, a single type has been standardised for all these mountain lines, the "maid-of-all-work" 2-8-0 "HG/S" with a tractive effort of 34,000 lb. at 85 per cent. boiler pressure. On the Bolan section, with its 15 miles of continuous 1 in 25 and shorter lengths of 1 in 33 and 1 in 55 grades, these useful machines are now used for both pulling and pushing mail, passenger, and goods trains; they take 250-ton mail trains up the 1 in 55 grades unaided. The same class works the Khyber line, also with 1 in 25 and 1 in 33 grades, and the continuous 1 in 40 grade from near Ambala up to Kalka. The "HG/S" (2-8-0) and "SG/S" (0-6-0) classes, as well as the light Pacific "XA" class, may, therefore, be considered as mixed traffic locomotives. The "XA's" are used on the less important services, such as over the Sibi-Harnai-Quetta or Sind-Pishin route, the Chaman line to the Afghan frontier, and on the Nushki line running out from Quetta into Persian territory at Zahidan. The leading dimensions of these mixed and of the principal goods classes are as follow :—

Class	Type	Cylinders (in.)	Axle load (tons)	Tractive effort at 85 per cent. b.p.	No. in service
"HG/S"*	2-8-0	(2) 22 × 26	16·25	34,076	255
"SG/S"	0-6-0	(2) 20 × 26	16·90	25,872	420
"XA"	4-6-2	(2) 18 × 26	13·00	20,960	50
"H.G"	2-8-0	(2) 21 × 26	15·75	30,000	26
,, ...	,,	(2) 20 × 26	15·75	27,500	
"SG"	0-6-0	(2) 18½ × 26	16·65	21,500	30
"N"	2-10-0	(4) 20 × 26	19·00	50,066	30
"MG"	4-6-0	(2) 19 × 26	17·10	25,800	5

* Includes substantially similar "HG/C" and "HG/G" classes

"SG/S" class 0-6-0 locomotive on mail, express, or passenger working in the Rawalpindi area

"SG/S" and "HG/S" classes share the working of goods trains throughout the system, as a general rule, the former mainly in the plains and the latter on the heavier-graded sections. The exception is in the Karachi District, where the "N" class four-cylinder 2-10-0's run over the western 296 miles of the main line to Rohri. They were designed about 1918 and ordered later for the G.I.P.R. as oil-burning main-line goods engines; the Bombay and Karachi areas were suited for oil-fuel because of the ease with which it could be brought from the Persian oilfields without land transport. Coal, on the other hand, has to be hauled all the way from Bengal, 1,000 to 1,500 miles. When the G.I.P.R. main lines out of Bombay were electrified and these fine engines were no longer required on the oil-burning sections of that system, they were, naturally, transferred to the Karachi District of the N.W.R. Now, however, to save tanker tonnage, these 30 engines are being converted to coal burning, and, because of the length of their fireboxes, are being fitted with mechanical stokers, as announced in *The Railway Gazette* of October 3, 1941 (p. 322). It is understood that, thus equipped, the "N's" are able to burn Khost (Baluchistan) coal, and that they are now being used on the 1 in 25 to 1 in 55 grades on the Bolan route to Quetta, near the coalfield.

There is also a small class of five engines known as the "MG," of the 4-6-0 type with a small coupled wheel diameter, corresponding to the mixed traffic Staniers on the L.M.S.R. but not so modern or efficient.

There are, in addition, a number of tank and shunting engines which, however, hardly come within the scope of these notes. Branch lines in the plains are worked by "SP/S," "SP," "SG/S," "SG," and "XA" classes in the main, though the shorter ones are catered for by 35 PT/S's (2-6-4 tank type). For shunting there are 47 "ST" 0-6-2's, and there were also 3 vast "XGs" 0-8-0 tender engines with 23½ in. × 28 in. cylinders and 46,390 lb. tractive effort, but these are being converted into 2-8-2's for hump shunting. There are also 25 "XT" 0-4-2 tanks for "light train" haulage; a modernised Southern Railway "D" tank, in fact.

It is noticeable that almost all the old standard types of engine, "SP," "SG," and "HG" are now superheated, and that the "XB" Pacifics—such as abound on the

(*Continued on page* 113)

* Part I was published in our July 9 issue

† Described and illustrated in our issue of July 26, 1940

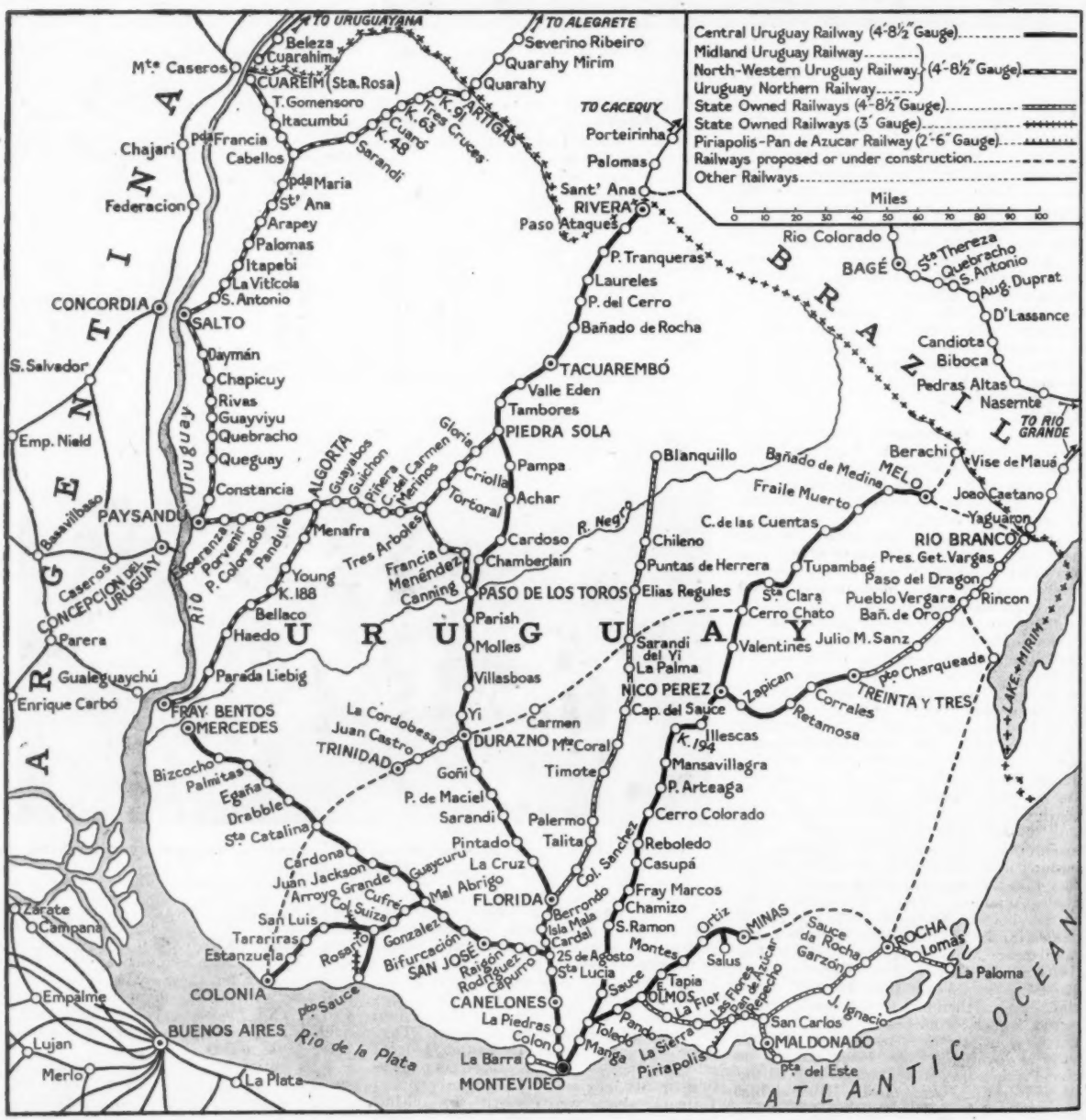
The Railways of Uruguay

A compact system of standard-gauge (4 ft. 8½ in.) lines, mainly British owned, adjoining the metre-gauge railways of Brazil

URUGUAY, with an area of 72,153 sq. miles, is the smallest of the South American republics. The population was estimated in 1937 at 2,154,300, and the capital, Montevideo, accounted for 760,000 of the total. The country is undulating and is given up almost entirely to grazing, the breeding of livestock, and agriculture generally. With good roads, and sea and river transport on three sides, it is well provided as regards communications. As in the neighbouring republic of Argentina, railway development in Uruguay owes much to British enterprise, and nearly 80 per cent. of the open mileage is owned and operated by British companies, of which the principal is the Central Uruguay Railway Co. of Monte Video Ltd. The first railway in Uruguay was that laid from Montevideo to Durazno, 127 miles, in 1874, and the Central Uruguay Company was formed in 1876 to take over this line.

Three subsidiary companies were formed—the Western Extension (San José to Mercedes, Colonia, and Pto. Sauce) in 1876 (212 miles); the Northern Extension (Paso de los Toros to Rivera) in 1888 (186 miles); and the Eastern Extension (to Melo and Treinta y Tres) in 1889 (314 miles)—to construct new lines, all worked, together with the North Eastern of Uruguay (76 miles)—leased in 1889—by the parent company until 1937, when all the lines were merged into a single concern.

Meanwhile, another group of railways in the middle and northern regions of the republic had been developed by the Midland Uruguay Railway Co. Ltd. This company was formed in 1887 to acquire a concession for a railway to run from Paso de los Toros to Salto, *via* Paysandú, 197 miles. The line was opened on November 1, 1890, and later, under a further concession, a branch was built from Algorta to Fray Bentos, opening on



The railways of Uruguay, indicating ownerships and gauges

Bridge over the Tacuari River, Rio Branco extension, Uruguayan State Railways

August 17, 1911. The Northern Railway (Cabellos to Artigas), registered in 1887, and the North Western Railway (Salto to Cuareim), formed in 1882, although owned by separate companies, are controlled by the Midland, and the three systems are operated together as a single undertaking from a central headquarters at Paysandú.

All these lines are of standard gauge, 4 ft. 8½ in. Thus the Uruguayan railway system is owned mainly by two groups, both British, the Central Uruguay, with headquarters at Montevideo, and the Midland, operating from Paysandú. The Central Uruguay has more recently acquired an interest in the Midland, so that the whole system, although worked separately, is really under a single control. The two systems connect at Paso de los Toros. The capital of the British companies, and their mileage, are as follow:—

	£	Route mileage
Central Uruguay Railway Co. Ltd. ...	10,890,000	972
Midland Uruguay Railway Co. Ltd. ...	2,234,907	320
North Western of Uruguay Railway Co. Ltd.	1,094,947	113
Uruguay Northern Railway Co. Ltd.	848,402	73
	15,068,256	1,478

Contacts are made with the Brazilian railway system at four points on the northern frontier, namely, by the Central Uruguay Northern Extension at Rivera; by the Midland Uruguay at Cuareim and Artigas; and by the Uruguayan State Railways at Rio Branco. There is, however, a break of gauge between the standard 4 ft. 8½ in. of the Uruguayan lines and the metre gauge of the Brazilian railways. The international rail and road bridge over the River Yaguaron (or Jaguaraõ) at Rio Branco is crossed by mixed gauge tracks so as to accommodate vehicles of the standard (4 ft. 8½ in.) gauge line of the Uruguayan State Railways and also those of the metre-gauge Brazilian line. Some illustrations of this international bridge with its mixed-gauge tracks were published in *The Railway Gazette* on March 12, 1937 (p. 498). Actually, the connecting link to Rio Branco from the former railhead at Treinta y Tres, the construction of which was provided for in the Treaty of February 16, 1928, between the Uruguayan and Brazilian Governments, was officially inaugurated in April, 1936. The mixed-gauge tracks over the international bridge permit of transhipment in either country.

State ownership in Uruguay dates from January, 1915, when the Federal Government acquired the section of 20 km. between Montevideo and La Barra (Santiago Vasquez). In the same year the Durazno—Trinidad line was constructed by the Government. In 1919 the Uruguayan Eastern was taken over, and in successive years other branches were built. Further lines are under construction. All the State-owned lines are on the standard gauge except the Puerto Sauce Railway, a small industrial line to the quarries at San Juan. The only other exception to the use of the standard gauge in Uruguay is the privately-owned Piriapolis Railway, which is on the 0.75 m. (2 ft. 6 in.) gauge. None of the Uruguayan railways has been electrified, although the Government is said to have certain schemes in contemplation. The use of railcars is being extended on some of the British-owned lines.

Subjoined is a list of the Uruguayan railways, with their mileages:—

Railway	Gauge	Route mileage
British-owned Railways		
Central Uruguay Railway Co. Ltd.	4 ft. 8½ in.	972
Midland Uruguay Railway Co. Ltd., 320 m.		
North Western Uruguay Railway Co. Ltd., 113 m.	4 ft. 8½ in.*	506*
Uruguay Northern Railway Co. Ltd., 73 m.		
Other Privately-owned Railways		
Piriapolis-Pan de Azucar	2 ft. 6 in.	9
Total privately-owned railways		1,487
State-owned Railways		
Montevideo-La Barra (Santiago Vasquez)	4 ft. 8½ in.	12
Durazno-Trinidad	,,	29
Uruguay Eastern: Olmos-Maldonado-Punta del Este ...	,,	75
San Carlos-Rocha	,,	45
Rocha-La Paloma	,,	19
Florida-Sarandi del Yi-Blanquillo...	,,	104
Treinta y Tres-Rio branch ...	,,	76
Other lines	,,	32
Puerto Sauce...	3 ft.	26
Total State-owned railways		418
Total all railways		1,905

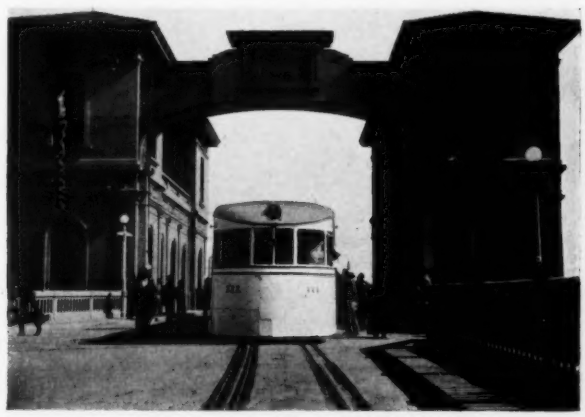
* Joint Administration

Locomotive Working on the N.W.R., India—II

(*Concluded from page* 111)

East Indian Railway and were so much criticised after the Bihta accident—were never run on the N.W.R. The "XA" and "XC" Pacifics have, as a rule, had flat-bottom track to run over on the latter system, mainly 90-lb., which is more resistant to side thrust setting up by hunting, and the road bed is normally more stable in north-western India. Long engine runs are now the order of the day, especially with the "XC" links, and considerably improved locomotive user results. In conclusion, it may be remarked that all N.W.R. engines are black with bright raised lettering and numbers and boiler-ring bands. Smoke-boxes and chimneys are black-leaded; considerable importance is attached to clean and smart appearance. Powerful electric headlights—and usually electric lighting of cabs and motion—are standardised; current is supplied from a small turbo-generator.

(*Concluded*)



Above: International rail and road bridge over the Yaguaron River, connecting the Uruguayan and Brazilian railway systems. Right: Railcar leaving Rio Branco Station to cross the international bridge into Brazil. Note the standard and metre-gauge tracks

Chairs being fixed to sleepers

Cleaning and oiling points

Bending bars for concrete pot sleeper reinforcements

Assembled bars being wired together in making the cages

Above: Unloading permanent-way stores

Left: A close-up view of point oiling

WOMEN IN THE G.W.R. CIVIL ENGINEERING DEPARTMENT

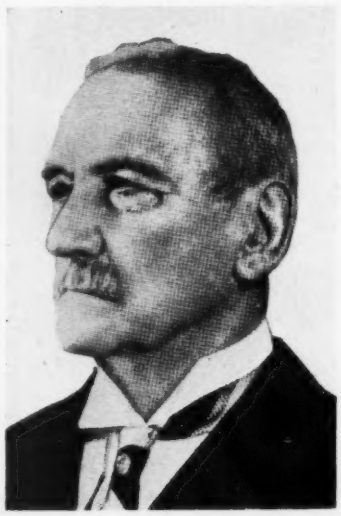
The above illustrations, for which we are indebted to the "Great Western Railway Magazine," show some of the work being done by women employed in the Civil Engineering Department of the Great Western Railway

RAILWAY NEWS SECTION

PERSONAL

Sir William Reardon-Smith, who is a Director of the Great Western Railway Company, has been re-elected President of the Institute of Chartered Shipbrokers.

We regret to record the death, at his home in North Carolina, on June 2, of Mr. John F. Stevens, a well-known American civil engineer. He was born on April 25, 1853, and at the age of 21 abandoned teaching for engineering. After working for two years with the Denver & Rio Grande and the Chicago, Milwaukee & St. Paul Railways, he went to Canada in 1882 as engineer for a contractor on the construction of the Canadian Pacific Railway west of Winnipeg, work which lasted until 1886. He then served the Duluth, South Shore & Atlantic, and in 1889 joined the Great Northern Railway (U.S.A.) to locate a line over the Rocky Mountains. On December 11, 1889, he discovered the Marias Pass, where his statue has since been erected, and in 1890 discovered what is known as the Stevens Pass through the Cascade Range, also on behalf of the G.N.R. His route required steep gradients, but was capable of being improved by subsequent tunnelling—a step which has since been taken. Mr. Stevens became Chief Engineer, and in 1902, General Manager, of the G.N.R., but in 1903 transferred to the Chicago, Rock Island & Pacific as Chief Engineer; two years later he became Vice-President. After acting as Chief Engineer of the Isthmian Canal Commission he returned to the U.S.A. in 1907 to modernise the New Haven system. His work in Siberia during and after the last war are mentioned in an editorial note, page 101. Mr. Stevens received many honours, including the Distinguished Service Medal of the U.S.A. Government. He was President of the American Society of Civil Engineers in 1927.



The late Mr. John F. Stevens
An outstanding American civil engineer

The death took place on July 5, at Little Baddow, Essex, of Mr. O. W. Day, aged 87 years. He entered the service of the G.W.R. on January 5, 1885, was superannuated on July 5, 1916. He was one of the pioneer members of the G.W.R. Athletic Association and excelled at cricket and bowls.

Mr. Sidney Garcke has joined the board of Dennis Bros. Ltd.

Mr. J. S. Wills has been appointed to the boards of the South Wales Transport Co. Ltd. and the Swansea Improvements & Tramways Company. Both companies are members of the B.E.T. group.

G.W.R. Appointments

The Great Western Railway announces the following appointments:—

Mr. A. C. B. Pickford, Assistant District Goods Manager, Swansea, to be District Goods Manager, Swansea, on the retirement of Mr. W. Davis (from September 6, 1943).

Mr. J. A. Ralph, to be Chief Cashier, on the retirement of Mr. G. H. C. Wiltshire (from October 1, 1943).

It was announced by Rome Radio on July 23 that Vittorio Cini, Italian Minister of Communications, had resigned for reasons of health. Cini, who is an industrialist, landowner, and shipowner, was appointed to the post he now relinquishes last February when he replaced Host Venturi. It seems probable that this resignation was the last received by Mussolini before his own announced so spectacularly on Sunday night, July 25. The appointment of General Federico Amoroso as Minister of Communications in the new cabinet was announced from Rome on July 26.

We regret to record the death, at the age of 75, of Mr. J. E. Smith, who was Signal Superintendent, Egyptian State Railways, from 1907 until his retirement in 1924. Mr. Smith began his career at Crewe Works, L.N.W.R., where he served as a draughtsman and as New Works Inspector, under Mr. A. M. Thompson, then Signal Superintendent. He was a Whitworth Exhibitioner in 1890, and was a prominent Freemason. Many former railway colleagues attended the funeral service at Christ Church, Crewe, including Mr. R. E. Jones, representing Mr. H. E. Morgan, Divisional Signal & Telegraph Engineer, Crewe, L.M.S.R.; Mr. A. Oldham, formerly Divisional Signal & Telegraph Engineer, Eastern Division, Derby, L.M.S.R.; and Mr. T. D. Richards, formerly Electrical Assistant to Signal Superintendent, Egyptian State Railways.

Institute of Transport

Among those elected recently to membership of the Institute of Transport are Mr. G. V. Bernays, Traffic Superintendent, Central Uruguay Railway; Mr. E. A. W. Dickson, Assistant Secretary, London & North Eastern Railway Company; Mr. R. Holland-Martin, Chairman, Southern Railway Company; Mr. D. S. Inman, District Goods & Passenger Manager, Leicester, L.M.S.R.; Mr. A. F. Kirby, General Manager, Palestine Railways; and Mr. D. Smith, General Manager & Engineer, Greenock Harbour Trust. Those elected to associate membership include Mr. C. B. Clapham, General Secretary, Municipal Passenger Transport Association; Mr. E. D. Croft, Secretary, Public Transport Association Incorporated; Mr. H. L. Ellis, Secretary & Chief Accountant, Western National Omnibus Co. Ltd., and Southern National Omnibus Co. Ltd.; Mr. D. H. Hawkeswood, Assistant District Goods Manager, Bristol, G.W.R.; Mr. W. Ingham, Director & Transport Manager, Edward Box & Co. Ltd.; Mr. Charles E. Lee, Associate Editor, *The Railway Gazette*; Mr. G. Watters, Buenos Ayres Great Southern Railway; and Mr. H. W. Wilder, Acting for Passenger Agent, L.P.T.B. New associates of the institute include Mr. H. J. Ferguson, Editor, *Passenger Transport Journal*; and Mr. A. H. I. Hearn, Ministry of Supply.

The Lord Mayor of London, Sir Samuel G. Joseph, naming a "Coronation" class locomotive "City of London" at Euston. The Lady Mayoress and Sir Thomas Royden, Chairman of the London Midland & Scottish Railway Company are on his right. Reference to the naming ceremony was made in our last week's issue

Always ready for active service

The frontispiece to "Facts About British Railways in Wartime," which was reviewed in our June 4 issue

A meeting in 1845 *of the Menai Tubular Bridge Council, with Robert Stephenson, presiding*

The group comprises (left to right) the following persons standing: Captain (afterwards Admiral) Constantine Richard Moorsom, R.N., Chairman of the Chester & Holyhead Railway Company; Latimer Clark, Assistant Engineer; Edwin Clark, Chief Assistant Engineer; Frank Foster, Resident Engineer, Bangor District; George Parker Bidder; John Hemingway, contractor for the masonry of the bridge; Captain Christopher Claxton, R.N., Superintendent of the nautical arrangements; a sailor; Alexander Ross, Resident Engineer, Conway District. The seated figures are Robert Stephenson; Charles H. Wild, Assistant Engineer during the floating; Joseph Locke; and Isambard Kingdom Brunel; the two last-named were "friendly volunteer assistants"

TRANSPORT SERVICES AND THE WAR—200

The Busy L.M.S.R.

Some 27,000 trains a day are now being run by the L.M.S.R. Of these, 17,000 are freight trains hauling upwards of 3 million tons of munitions and merchandise daily.

Residence in Parts of Kent

The Ministry of Home Security has announced that the area in Kent subject to restrictions on the entry of new residents has been reduced in extent, so as to coincide with the area subject to the ban on pleasure visits. The following places are now freed from restrictions on residence: The boroughs of Dartford, Gravesend, and Maidstone; the urban districts of Northfleet and Swanscombe; the rural districts of Cranbrook, Dartford, Hollingbourne, Maidstone, and Malling; and certain parishes in the rural districts of Strood, Tenterden, and West Ashford. The restrictions on the entry of new residents remain in force in the coastal portions of the county, which are also subject to the ban on pleasure visits.

Transport of Plums

The Ministry of Food Directions restricting the transport of plums took effect on July 19, and remain in force until September 14. They prohibit consignments wholly or partly by rail from any place within any one of a number of "originating" areas to any place in the United Kingdom outside that area except to a "destination" area allotted to the originating area. Road transport is limited to distances not exceeding 35 miles, which may include a distance to 10 miles over an area boundary. The provision which last season restricted certain movements to minimum consignments of two tons has been withdrawn. A new Article permits gifts of plums not exceeding 14 lb. gross to any one consignee on any one occasion to be sent either by rail or road, free from the restrictions imposed by the Order.

Women Guards on the Southern

The Southern Railway is now training women in the grade of guards. There are two training schools, one at Victoria and one at Brighton, where the rules and regulations are taught by an ex-station-master. The women are then examined and, on passing out, work for a period on a train under one of the regular guards to gain practical experience. After this they are placed on their own in charge of a train. About 20 women are taking this course and 6 are already in charge of their own trains. At a recent examination the lowest marks obtained were 93 per cent.

Curtailed Summer Services in Canada

Instructions of the Canadian Transport Controller have made it necessary for the Canadian National Railways to restrict the summer passenger services previously announced in timetable folders, etc. We refer to this subject in an editorial note at page 102. The important changes are as follow:—

Summer train service between Mont Joli and Metis Beach will not operate this year, and sleeping cars are working on Monday to Friday nights (inclusive) from Montreal to Mont Joli, and on Sunday to Thursday nights (inclusive) from Mont Joli to Montreal. The first trip from Montreal was on Friday, June 25, and the last trip from Mont Joli will be made on Monday, September 6. Connecting local service between Mont Joli and Metis are provided daily, except Sunday, by the Canada & Gulf Terminal Railway.

Services between Moncton, N.B., and Prince Edward Island are restricted to one trip each way daily, except Sunday, leaving Moncton at 10.40 a.m., just after the arrival of the Maritime Express from Montreal. Returning, the train leaves Charlottetown in the morning and connects at Moncton with the Scotian for Montreal. From June 27 the through sleeping car has left Montreal at 12 noon daily, except Saturday, for Charlottetown, instead of on the evening train from Montreal as heretofore.

The parlour car service on the Maritime Express between Montreal and Mont Joli both ways, is not being operated this year.

The service between Montreal and the Laurentians, Huberdeau, and Lac Remi remains without summer additions.

One of the "G" type (Guy) 4-wheel wartime additions to the London Transport fleet, of which there are now 71 at work. The first was placed in service on December 1, 1942. Four have been equipped with wooden-slatted seats, as recorded last week (page 93)

There is no passenger train service this summer season between St. Eustache and Calumet Beach.

More Restrictions in Canada

The Canadian Transport Controller has announced the suspension of summer tourist fares on all Canadian railways, from July 6. Instructions given by him to the railways indicate that the suspension is for an indefinite period.

New Turkish Road Bridge

A new bridge forming the connecting link between two sections of the Adalia (Antalya)-Aksekir road was opened to traffic some time ago, according to a message dated June 12. The bridge is near the village of Ahmedler; it is 147½ ft. in length. The new connection is designed to facilitate road traffic between Ankara and the south coast of Anatolia.

Return Tickets Abolished in Egypt

From May 1 last the Egyptian State Railways suspended the issue of return tickets in accordance with a Decree of the Minister of Transport dated April 24. It is understood that this decision was taken partly to increase railway revenue, and also to discourage railway travel at a time when the railways are handling exceptionally heavy traffics. Return tickets on the Egyptian State Railways have normally shown a reduction of about 10 per cent. on the sum of the two single tickets.

Women on Locomotives in Russia

The railway transport workers of the Kuznotsk metallurgical plant have won the Socialist Emulation prize for the non-ferrous metal industry for the past two months. Their May plan for the loading and transport of metals and coke was exceeded by 21 per cent., and they worked equally well in June. The plan for repair of locomotives was exceeded by 60 per cent. Half of the assistant locomotive drivers are young women who have learned to drive engines this year. Special courses have been organised for them.

The Swedish Transit Traffic

Unofficial reports both from Stockholm and Gothenburg state that the Swedish Government proposes to discontinue, by August 1, the present arrangements for the transit of German troops over the Swedish

(*Continued on page* 119)

Two of the first batch of women guards appointed by the Southern Railway, showing respectively the skirt and the trouser versions of the uniform. The views were taken at Victoria Station. These are the first women train guards to work from a large main-line terminus, but the G.W.R. had previously used women guards in outlying areas; one was included in the group photograph we published at page 338 of our issue of March 26 last

Railway Road Interests in North America

Direct ownership, associated road companies, and co-ordinated workings combine to involve 5,249 buses and 4,257 lorries

IN view of the wartime restrictions on non-essential road transport in the U.S.A. and Canada, primarily in the interests of rubber conservation (although also to save petrol transport to the eastern part of the continent), it is of interest to record the numerical strength of the rail and road co-ordination previously achieved by the American and Canadian railways. The following list, which we have compiled from figures corrected to the fourth quarter of 1942, are based in the main on the tabulations prepared for *The Pocket List of Railroad Officials*, and published by the Railway Equipment & Publication Company of New York.

The list shows the railway companies owning, operating, or affording co-ordinated service, with motorbuses and motor lorries, and indicates the total strengths of the road fleets involved. With few exceptions, these road fleets will seem small to British readers, but it must be recalled that public passenger road transport has not developed in the U.S.A. to anything like the extent it has in Great Britain. In general, America has no such density of public road transport and frequency of service as are common in the British Isles.

With regard to goods haulage, there is comparatively little railway-owned, or railway associated, through haulage of goods by road (partly by reason of the greater length of haul usually involved), and many of the small co-ordinated fleets shown in our table are concerned with comparatively minor activities, with collection and delivery, or with transfer work between railway termini.

It will be seen that, in all, 5,249 motorbuses and 4,257 motor lorries are owned by, or worked in conjunction with, the North American railways.

	Owned		Co-ordinated	
	Buses	Lorries	Buses	Lorries
Atchison, Topeka & Sante Fe Railway System (See Santa Fe Transportation Company)				
Atlanta & Saint Andrews Bay Railway Company (See St. Andrews Bay Transportation Company)				
Atlantic Coast Line Railroad	—	1	4	1
Aurora, Elgin & Fox River Electric Company	—	1	—	—
Baltimore & Annapolis Railroad Company	14	—	—	—
Baltimore & Ohio Railroad Company (See West Virginia Transportation Company)				
Bamberger Transportation Company (Bamberger Railroad Company)	3	—	—	—
Bangor & Aroostook Railroad Company	9	2	—	—
Bangor Hydro-Electric Company	25	—	—	—
Blue Ridge Transportation Company (Potomac Edison Company)	39	—	—	—
Boston & Maine Transportation Company (Boston & Maine Railroad)	108	71	—	130
British Columbia Electric Railway Co. Ltd.	89	—	—	—
Burlington Transportation Company (Chicago, Burlington & Quincy Railroad Co.)	168	305	—	—
Bush Terminal Company (Bush Terminal Railroad Company)	—	30	—	—
Cadiz Railroad Company	—	1	—	—
Canadian National Railways (See Port Arthur, Ont-Geraldton, Ont., Highway Service)				
Canadian Pacific Transport Co. Ltd. (Canadian Pacific Railway Company) (Dominion Atlantic Railway Company) (Grand River Railway Company)	6	—	—	—
Cedar Rapids & Iowa City Railway	—	—	—	1
Central of Georgia Motor Transport Company (Central of Georgia Railway)	3	—	—	—
Central Vermont Railway Inc. (See also Central Vermont Transit Corporation)	—	—	2	1
Central Vermont Transit Corporation (Central Vermont Railway Inc.)	—	1	—	—
Chesapeake Western Railway (See Richmond-Harrisonburg Freight Line)				
Chicago & North Western Railway Company (See Interstate Transit Lines)				
Chicago, Burlington & Quincy Railroad Company (See Burlington Transportation Company) (See Denver Colorado Springs Pueblo Motor Way Inc.) (See Denver-Salt Lake-Pacific Stages Inc.)				
Chicago, Indianapolis & Louisville Railway (See Monon Transportation Corporation)				
Chicago, Milwaukee, St. Paul & Pacific Railroad Co.	5	—	—	—
Chicago, North Shore & Milwaukee Railroad Co.	28	14	—	—
Chicago, Rock Island & Pacific Railway Company (See Rock Island Motor Transit Company)				
Chicago, St. Paul, Minneapolis & Omaha Railway Company (See City Bus & Baggage Company) (See Lake Shore Bus Company)				
Chicago, South Shore & South Bend Railroad	6	—	6	—
City Bus & Baggage Company (Chicago, St. Paul, Minneapolis & Omaha Railway Company)	1	—	—	—
Columbus & Greenville Railway Company	—	6	—	6
Copper Range Motor Bus Company (Copper Range Railroad Company)	—	—	6	1
Dardanelle Transfer Company (Dardanelle & Russelville Railroad Company)	1	3	—	—
Denver & Rio Grande Western Railroad Company (See Denver Colorado Springs Pueblo Motor Way) (See Denver-Salt Lake-Pacific Stages Inc.) (See Rio Grande Motor Way Inc.)				
Denver Colorado Springs Pueblo Motor Way Inc. (Chicago, Burlington & Quincy Railroad Co.) (Denver & Rio Grande Western Railroad Co.)	19	1	—	—
Denver-Salt Lake-Pacific Stages Inc. (Chicago, Burlington & Quincy Railroad Co.) (Denver & Rio Grande Western Railroad Co.) (Missouri Pacific Railroad Company)	7	—	—	—
Dequeen & Eastern Railroad Company	1	—	—	—
Dominion & Eastern Railroad Company (See Canadian Pacific Transport Co. Ltd.)	—	—	1	18
Duluth, Missabe & Iron Range Railway Company (See Hackett Motor Company)				
Erie Railroad Company	—	—	14	240
Evansville & Ohio Valley Railway Company	14	2	—	—
Evansville, Suburban & Newburgh Railway Co.	7	1	—	—
Faus Transportation Company (San Luis Valley Southern Railway Company)	—	—	—	1
Fonda, Johnstown & Gloversville Railroad Co.	40	1	—	—
Frisco Transportation Company (St. Louis-San Francisco Railway Company)	21	160	—	—
Georgia Highway Transport Company (Georgia Railroad)	1	—	—	—
Grand River Railway Company (See Canadian Pacific Transport Co. Ltd.)				
Great Northern Railway Company	—	17	—	—
Gulf Transport Company (Gulf, Mobile & Ohio Railroad Company)	51	60	—	—
Hackett Motor Company (Duluth, Missabe & Iron Range Railway Co.)	1	—	—	—
Hillsboro & Northeastern Railway Company	—	1	—	—
Hoosac Tunnel & Wilmington Railroad	1	2	—	—
Huntingdon & Broad Top Transit Company (Huntingdon & Broad Top Mountain Railroad & Coal Company)	—	1	—	—
Indiana Railroad	90	74	—	—
Indiana Service Corporation	10	—	—	—
International Railway Company	636	—	—	—
Interstate Transit Lines (Chicago & North Western Railway Company) (Union Pacific Railroad)	237	4	—	—
Kansas City, Kaw Valley Railroad Inc. (See Kaw Valley Stages)				
Kansas City Public Service Company	234	—	—	—
Kansas City Southern Transport Co. Inc. (Kansas City Southern Railway Company)	—	10	—	10
Kaw Valley Stages (Kansas City, Kaw Valley Railroad Inc.)	6	—	—	—
Lackawanna & Wyoming Valley Railroad Company (See Laurel Line Transportation Company)				
Lakeland Railway	—	1	—	—
Lake Shore Bus Company (Chicago, St. Paul, Minneapolis & Omaha Railway Company)	2	—	—	—
Laurel Line Transportation Company (Lackawanna & Wyoming Valley Railroad Co.)	6	3	—	—
Ligonier Transportation Company (Ligonier Valley Railroad Company)	—	1	—	—
Louisiana, Arkansas & Texas Transportation Co. (Louisiana & Arkansas Railway Company)	2	33	—	—
Louisiana & North West Transportation Co. Inc. (Louisiana & North West Railroad Company)	—	—	—	1
Louisville, New Albany & Corydon Railroad Co.	—	—	—	1
Maine Central Transportation Company (Maine Central Railroad Company)	47	5	—	—
Manchester & Oneida Railway	1	—	—	—
Mason City & Clear Lake Railroad Company	2	—	—	—
McCloud River Railroad Company	2	—	—	—
Minneapolis & St. Louis Railroad Company	—	4	—	—
Missouri & Arkansas Transportation Company (Missouri & Arkansas Railway Company)	—	9	—	4
Missouri-Kansas-Texas Railroad Company	—	—	—	6
Missouri Pacific Railroad Company (See Denver-Salt Lake-Pacific Stages) (See Missouri Pacific Transportation Company)				
Missouri Pacific Transportation Company (Missouri Pacific Railroad Company)	180	15	—	—
Monongahela Railway Company	—	1	—	3
Monongahela Transport Company (Monongahela West Penn Public Service Co.)	23	—	—	—
Monongahela West Penn Public Service Company (See also Monongahela Transport Company)	18	—	—	—
Monon Transportation Corporation (Chicago, Indianapolis & Louisville Railway Co.)	1	1	—	—
Montana, Wyoming & Southern Railroad Company	1	—	—	—
Moshassuck Transportation Company (Moshassuck Valley Railroad Company)	—	—	—	35
Nevada Northern Railway Company	2	—	—	—
New England Transportation Company (New York, New Haven & Hartford Railroad Co.)	147	254	—	—
New York, Susquehanna & Western Railroad Co.	—	—	9	8
Niagara, St. Catharines & Toronto Railway Co.	40	—	—	—
Norfolk Southern Bus Corporation (Norfolk Southern Railway Company)	50	19	—	10
Northeast Oklahoma Railroad Company	6	—	—	—
Northern Pacific Transport Company (Northern Pacific Railway Company)	20	37	—	—
Oklahoma Railway Company	107	—	—	—
Oshawa Railway Company	12	1	—	—
Pacific Electric Railway Company	388	60	—	—
Pacific Greyhound Lines	760	—	—	—
Pacific Motor Trucking Company (Southern Pacific Company)	5	396	—	—

	Owned		Co-ordinated	
	Buses	Lorries	Buses	Lorries
Pacific Truck Express (Southern Pacific Company)	—	18	—	—
Pennsylvania Greyhound Lines Inc. (Pennsylvania Railroad)	551	—	—	—
Pennsylvania Railroad				
Various affiliated trucking companies (See also Pennsylvania Greyhound Lines Inc.)	—	1,369	—	—
Peoria & Pekin Union Railway Company	—	1	—	—
Port Arthur, Ont.-Geraldton, Ont. Highway Service (Canadian National Railways)	4	7	—	—
Potomac Edison Company (See Blue Ridge Transportation Company)				
Prattsburgh Bus Company Inc. (Prattsburgh Railway Corporation)	7	1	—	—
Quebec Central Transportation Company (Quebec Central Railway Company)	8	—	—	—
Quebec Railway, Light & Power Company	82	14	—	—
Quincy Railroad Company	—	—	—	1
Reading Transportation Company (Reading Company)	34	58	—	—
Richmond-Harrisonburg Freight Line Inc. (Chesapeake Western Railway)	—	14	—	—
Rio Grande Motor Way Inc. (Denver & Rio Grande Western Railroad Co.)	44	73	—	—
Rock Island Motor Transit Company (Chicago, Rock Island & Pacific Railway Co.)	2	158	—	—
St. Andrews Bay Transportation Company (Atlanta & Saint Andrews Bay Railway Co.)	14	8	—	—
St. Louis & Hannibal Railroad Company	—	2	—	—
St. Louis & Troy Railroad Company	—	1	—	—
St. Louis-San Francisco Railway Company (See Frisco Transportation Company)				
St. Louis Southwestern Railway Company (See Southwestern Transportation Company)				
Salt Lake & Utah Railroad Corporation	5	—	—	—
San Diego Electric Railway Company	212	—	—	—
San Francisco & Napa Valley Railroad	7	—	—	—
San Luis Valley Southern Railway Company (See Faus Transportation Company)				
Santa Fe Transportation Company (California) (Atchison, Topeka & Santa Fe Railway System)	—	4	—	—
Sante Fe Transportation Company (Delaware) (Atchison, Topeka & Santa Fe Railway System)	2	1	—	—
Sierra Railroad Company	—	6	—	—
South Brooklyn Railway	—	—	2	30
Southern Pacific Company (See Pacific Greyhound Lines) (See Pacific Motor Trucking Company) (See Pacific Truck Express)				
Southern Pacific Lines in Texas & Louisiana (See Southern Pacific Transport Company) (See Southwestern Greyhound Lines Inc.)				
Southern Pacific Transport Company (Southern Pacific Lines in Texas & Louisiana)	—	47	—	—
Southwestern Greyhound Lines Inc. (Southern Pacific Lines in Texas & Louisiana)	240	—	—	—
Southwestern Transportation Company (St. Louis Southwestern Railway Company)	—	180	—	—
State Belt Railroad	—	1	—	—
Tama & Toledo Railroad Company	—	1	—	—
Temiskaming & Northern Ontario Railway	8	1	—	—
Tennessee, Alabama & Georgia Railway	2	—	—	—
Texas & Pacific Coaches Inc. (Texas & Pacific Railway Company)	2	—	—	—
Texas & Pacific Motor Transport Company (Texas & Pacific Railway Company)	—	146	—	—
Texas & Pacific Railway Company (See Texas & Pacific Coaches Inc.) (See Texas & Pacific Motor Transport Co.)				
Texas Electric Railway Company	55	2	—	—
Toledo, Peoria & Western Railroad	—	2	—	—
Toronto, Hamilton & Buffalo Railway Company	—	—	1	—
Union Electric Railway Company	7	—	—	—
Union Pacific Railroad (See Interstate Transit Lines) (See Union Pacific Stage Company) (See Union Pacific Stages Inc.)				
Union Pacific Stage Company	11	2	—	—
Union Pacific Stages Inc. (Union Pacific Railroad)	103	—	—	—
Utah Idaho Central Railroad Corporation	6	—	—	—
Virginia & Truckee Railway (See also Virginia-Truckee Transit Company)	—	5	—	—
Virginia-Truckee Transit Company (Virginia & Truckee Railway)	10	—	—	—
Warren & Saline River Railroad Company	—	1	—	—
Waterloo, Cedarfalls & Northern Railway Co.	36	—	—	—
Waterville Transfer Company (Waterville Railway Company)	—	2	—	—
Western Railway of Mexico	3	2	—	—
West Virginia Transportation Company (Baltimore & Ohio Railroad Company)	44	1	—	—
Wilmington, Brunswick & Southern Railroad Co.	2	1	—	—
York Utilities Company	19	—	—	3
Yreka Western Railroad Company	1	2	—	—
Totals	5,204	3,745	45	511

Transport Services and the War

(*Continued from page* 117)

railways, *en route* to and from Norway. Recently, some of these transit trains, which formerly were run daily, have not been operated, and it is possible that this has added to the strength of the rumour. The only official statement on the position is that of the Swedish Foreign Office which says that the traffic continues as usual, but that "technical difficulties" have prevented the trains from running on certain occasions.

Swedish Road Traffic Cuts

During the first four months of this year, the Swedish State Railways reduced the total route length of their road services from 5,889 miles to 4,625 miles. Approximately 90 per cent. of the vehicles remaining in service are operating on producer gas generated from wood fuel. On January 1 of the present year, there were 472 buses and 87 motor lorries operating in the service of the Swedish State Railways. They were carrying a volume of traffic amounting to about 45 per cent. of that handled before the war.

Railway Fuel Oil in Morocco

In view of fuel-oil and petrol shortages, the Moroccan Railways Company took steps in 1941 to alleviate the situation by manufacturing fuel alcohol from sugar beet. Contracts were made with farmers, which provided for the railway supplying seeds and fertilisers, and purchasing, on the ground, the entire harvest. Agreements were made with farmers in the district of Port Lyautey, who planted beets on areas ranging from 2 to 50 acres. Irrigation was unnecessary. Because of several difficulties, crop returns were variable, ranging from 0 to 16 short tons an acre, with frequent returns of 11 to 13 tons an acre. Sugar content was extremely high, averaging 19·65 per cent. Conversion into alcohol was made at a distillery at Port Lyautey. It is expected that at least 500 acres of beets will be planted in 1943, which should yield about 105,000 gal. of alcohol. Cultivation of sugar beets in North Africa, and production of alcohol and sugar therefrom, have been considered for a number of years, and the operations of the Moroccan Railways have demonstrated that it is commercially feasible.

Brazilian Highway Reconstruction

Funds have been made available by the Brazilian Government for reconstruction of the highway between Rio de Janeiro and San Paulo. This road will be approximately 21 ft. wide and will have two asphalt-surfaced lanes separated by a 10-ft. parkway. The project is scheduled for completion by 1946.

Producer-Gas in Brazil

It has been announced officially that on April 8 last there were 2,084 motorcars in the city of Rio de Janeiro operating with producer-gas equipment. The apparatus is said to be costly in Brazil, and its operation not always successful. As in other countries, the effort is being made in order to leave petrol for vehicles such as buses, police cars, and fire engines, which must work with the maximum efficiency.

Limited Motorcar Use in Mexico

Under the provisions of a Presidential Decree which became effective on May 7, the use of motorcars in the Federal District of Mexico, and in cities with populations exceeding 30,000, has been restricted to six days a week, with specified exceptions such as the diplomatic and consular corps, military and police services, ambulances, mail and telegraph services, fire departments, funeral undertakers, doctors and midwives, taxicabs, and public vehicles in regular passenger and freight services. This Decree is designed to conserve rubber. For purposes of enforcement, restricted motorcars are divided into five groups, to each of which is assigned a distinctive coloured sticker corresponding to one of the five days, Monday to Friday. Cars bearing these coloured stickers are not permitted to circulate on the day to which the particular colour has been assigned. No restrictions, however, apply to any car on Saturdays and Sundays. Cars specifically exempted carry a sticker marked "Rubber Saving (Exempt)."

Burma Railway Connections Severed

It has recently been announced by the U.S.A. Air Force that another span has been destroyed in the Myitnge railway bridge, just south of Mandalay, which should result in this traffic artery being closed for some time to come. The bridge was first damaged by American bombers in January last, but since then has been used subject to restrictions. The new attack seems to have succeeded in dividing the Burma railway system into two parts.

Burma-Siam Railway Link

Before the outbreak of the present war there was a proposal for the construction of a railway link between Ye in Burma and Prachuab Kirikan, on the Siamese main line between Bangkok and Malaya. The approximate course of this was indicated in a map we published in our issue of January 23, 1942 (page 133). Since the Japanese occupation of these parts, it is reported that efforts have been made to link the railways of Burma with those of Siam by means of a more direct connection with Bangkok, possibly between Tavoy and Banpong. The Japanese are said to be pushing forward from both ends the work on this new railway, and the construction gangs and equipment have formed targets for American airmen on a number of occasions.

G.W.R. Home Guard and Civil Defence

Inspection and Parade of London Division Units at Castle Bar Park

On the afternoon of Sunday, July 25, the Great Western Railway held a combined parade of members of its Home Guard and Civil Defence units serving in the London Division. It is probably the first time in railway wartime history that a combined parade of this description has taken place.

The parade, which was held in the G.W.R. Athletic Association ground at Castle Bar Park, was witnessed by a large number of spectators. Nearly 1,000 members of the staff took part, and the entire parade was inspected by Lt.-General Sir Arthur F. Smith, D.S.O., M.C., General Officer Commanding, London District, who was accompanied by Major-General Lord Bridgeman, D.S.O., M.C., Director-General, Home Guard & Territorial Army; Lord Leathers, Minister of War Transport; Sir Charles Hambro, M.C., Chairman of the Great Western Railway Company; Sir Edward Cadogan, Director; Sir James Milne, General Manager; Colonel K. W. C. Grand, Assistant General Manager & Liaison Officer to the Home Guard. Mr. F. R. E. Davis, Secretary; Mr. A. S. Quartermaine, Chief Engineer; Mr. F. W. Lampitt, Chief Goods Manager; Mr. G. Stephens, Chief of Police; Dr. H. H. Cavendish Fuller, Chief Medical Officer; and other officers were also present.

Some fifty men from "A," "B," and "C" Companies of the 38th County of London Battalion, Home Guard, formed a guard of honour, the inspection of which by Lt.-General Sir Arthur Smith preceded the general inspection of the parade.

The parade consisted of two battalions, the first composed entirely of officers and men from the 38th County of London Home Guard (all G.W.R. companies) and the second included officers and men from Home Guard units in the London Division from Aldermaston, Oxford, Newbury, Maidenhead, Reading, Slough, and High Wycombe, together with squads from the G.W.R. Civil Defence personnel. The Civil Defence personnel were drawn from the company's police, and first-aid, as well as members of the staff forming the 37th Brigade of the St. John Ambulance Association, decontamination, rescue clearance, and fire-fighting services. In the parade were a number of nurses, drawn from the company's first-aid staff in its casualty clearing station at Paddington. One of the company's fire tenders with trailer pump were also included in the parade.

Music during the afternoon and during the march past was provided by the band of H.M. Coldstream Guards, by permission of the Major-General Commanding the Brigade of Guards, under the direction of Major Causley Windram.

On the return to the saluting base after the inspection, Lord Bridgeman and Lord Leathers addressed the parade. Tributes were paid to the personnel of both the Home Guard and the Civil Defence units, and the splendid spirit and the keeness manifest by the men of all units who had come forward and given their time so willingly were specially praised. Sir Charles Hambro in a brief speech spoke of the signal honour that had been paid by the presence at the parade of the Minister of War Transport, the General Officer Commanding the London District, and the Director-General of the Home Guard.

The salute at the march past was taken by Lt.-General Sir Arthur Smith.

After the termination of the official ceremonies, drill demonstrations were given by the 7th Berks Battalion Home Guard, followed by squad battle drill, parade, and tactical exercise by "B" Company of the 38th C. of L. Battalion, and "A" Company of this Battalion demonstrated a platoon going into action, and "C" Company gave a display of squad and arms drill. Music during the evening was provided by the drum and fife band of the 38th County of London Battalion Home Guard.

By co-operation of Captain A. Stroud, of the Church Army, two mobile canteen units from that organisation were in attendance for the benefit of the Home Guard units. In addition, to meet the needs for light refreshments for staff and friends, two other mobile trailer canteens were made available.

New Staff Canteen at Kings Cross

A canteen for staff employed in all departments of the Goods and Locomotive Depots at Kings Cross was opened by Mr. George Mills, Divisional General Manager, Southern Area, L.N.E.R., on July 21. The canteen has been planned to cater for 3,200 persons during every period of twenty-four hours, and is equipped with modern apparatus, some of which is new to canteen practice. The latter includes two items which the L.N.E.R. has introduced, namely, special equipment for plating meals, and an apparatus known as the Teservor, which allows every individual to be served with tea with or without sugar or milk, or both, according to his taste, and eliminates waste.

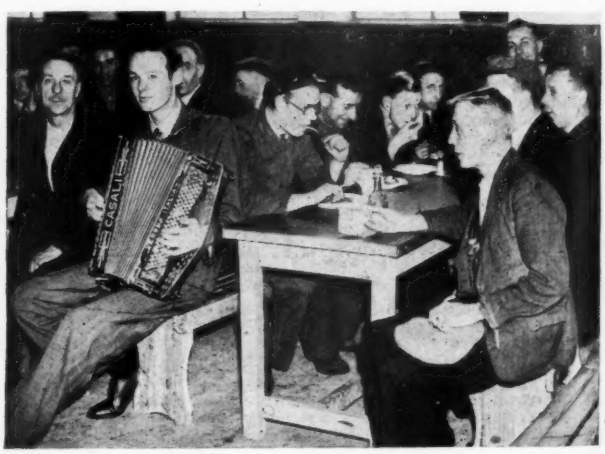
In many canteens it is the custom to plate meals well in advance, and to stack the plates in hot closets. This tends to make food less palatable, as well as to result in a loss in nutriment. With the method and apparatus in use in the new canteen at Kings Cross, the maximum period before service for which any meal is plated is 5 min.; and this is reduced during other than peak periods.

For those who are unable to visit the canteen by reason of having to work away from their base, provision is made for the supply of substantial packet meals.

Before declaring the canteen open, Mr. Mills (who was introduced by Mr. W. E. Green, District Superintendent, Kings Cross) said that he felt his to be a very pleasant duty, as a canteen represented three important factors, namely, cheerfulness, warm food, and companionship. He thought that canteens would play a more prominent part in the post-war period than they had done up to 1939. The facilities at Kings Cross would have been completed some time ago had it not been for the shortage of labour and materials.

Replying on behalf of the staff, Mr. C. W. Evans said that he wished to thank Mr. Mills for being present, despite the many calls on his time. The canteen was an excellent answer to the needs of the staff, and it was much appreciated.

Those present at the opening ceremony included also Mr. C. K. Bird, Acting Goods Manager, Southern Area; Mr. L. H. K. Neil, London City Manager; Mr. J. I. Campbell, Assistant to Engineer (Construction), London; Mr. J. A. Frampton, District Locomotive Superintendent, Kings



Two views of the interior of the canteen (described above) for staffs of the Goods and Locomotive Depots at Kings Cross, which was opened by Mr. George Mills, Divisional General Manager, Southern Area, L.N.E.R., on July 21. Left: Mr. Mills being served with lunch after the ceremony. Right: Members of the staff listening to music provided by an E.N.S.A. entertainer during the meal

Cross; Mr. G. A. Musgrave, Locomotive Running Superintendent (Western Section), Southern Area; and Mr. E. K. Portman Dixon, Canteen Superintendent for the system.

Loud-Speaker System at Waverley, L.N.E.R.

A comprehensive "public address system," or battery of loud speakers, has just been completed at Waverley Station, Edinburgh, L.N.E.R., and was brought into use on July 16. It comprises a total of 150 loud speakers, covering all platforms, concourses, passage ways, refreshment rooms, and the dining room. The installation is designed to meet the particular needs of a large station where it is essential to make provision for either restricting the announcements to selected areas or for broadcasting them over a wide area. These requirements are met in two ways; first by employing sound-diffusing units giving a narrow channel of clear speech, and thereby confining announcements to any particular platform and preventing intelligible speech being heard on adjacent platforms to which the broadcast is not applicable; and secondly by dividing the area into a number of independent circuits which may be used singly or grouped as required. The grouping facilities allow for three groups covering (1) the north side of the station, (2) the south side of the station, and (3) the main circulating areas in the centre of the station. Alternatively, all the 150 loud speakers can be switched in when necessary. The number of loud speakers on each circuit varies between 3 and 27. In all, there are 16 independent circuits covering the whole of the station.

A control panel is provided in the announcer's cabinet, fitted with keys to enable the necessary switching operations to be performed and, as it was considered undesirable to permit indiscriminate switching, there are, in addition to the 16 independent circuit keys, three group keys which when operated connect the groups as above mentioned and are so arranged that with the operation of any one group key all other circuits or groups of circuits are disconnected. A special telephone circuit is installed to ensure rapid communication with the announcer. Ten telephones are provided, extending to Waverley East signal box, Waverley West signal box, the stationmaster's office, the platforms, and the passenger trains control desk in the Southern Division Control Office. To call the announcer it is necessary only to remove the hand-micro-telephone from its rest; this operation causes a lamp to light on the control panel if the public address microphone is "live," and in addition it operates a buzzer when the microphone is out of circuit.

The amplifying equipment consists of 5 units, each giving an output of approximately 30 watts, with a spare unit as a standby. The whole of the apparatus, including the telephone equipment, is operated from the 230-volt 50-cycle public supply mains. Provision has been made for the inclusion of an electric record player for the diffusion of music, but by reason of the heavy demand for this type of apparatus it is not yet available. The announcer's cabinet is built into what was formerly Waverley North Central signal box, and a self-contained compartment, specially constructed of double partitions of Celotex boarding, packed with glass wool, has been erected; this construction was necessary to exclude external noise and prevent internal sound reflection. The loud speakers, amplifying equipment, and telephone power unit were supplied by Ardente Accoustic Laboratories Limited, Guildford, Surrey. (*See editorial note, page* 102).

Questions in Parliament

Bank Holiday Travel

Mr. Ellis Smith (Stoke—Lab.) on July 22 asked the Minister of Labour if he was aware that the railway warrants issued to workers who had been directed are not available for two days either side of the Bank Holiday on a return journey from their homes; how would that arrangement affect workpeople where their shut down period terminated on the Tuesday after Bank Holiday; was he aware that the railway companies had refused to meet this difficulty; and would he take action to avoid friction which might lead to a two or more days loss of production.

Mr. G. Tomlinson (Joint Parliamentary Secretary, Ministry of Labour): The Minister of Labour has been advised by the Minister of War Transport that the congestion on the railways immediately before and after Bank Holidays will not permit of extra passenger travel without detriment to essential war traffic. He has, therefore, agreed that the use of cheap travel warrants for transferred workers should, like other forms of privilege travel be suspended for a few days at these times, and it is regretted that the war situation will not allow any variation of this decision.

Mr. Smith: In view of the position that these workpeople will be in and that production should come before anything else, will the Parliamentary Secretary approach the Minister of Transport with a view to having this matter reconsidered and treated as a matter of urgency?

Sir Patrick Hannon (Birmingham, Moseley—C.): This is really a matter of urgency, and will not the Parliamentary Secretary see the Minister of Transport again? It means a serious stop in production if these people cannot travel back to their work.

Mr. Tomlinson: This does not interfere with travelling back to their work. It is the travelling away that is interfered with. In view of what has been said, I will see what can be done.

Bridging of Severn Estuary

Mr. Bracewell Smith (Dulwich—C.) on July 21 asked the Parliamentary Secretary to the Ministry of War Transport whether the bridging of the Severn estuary was in contemplation in connection with the re-organisation or extension of road or railway facilities; and whether he would consider in conjunction therewith the Severn Barrage Scheme, reported on favourably by a select committee in 1933, with a view to increasing the electrical generating resources of the country in a manner which would not be more costly than coal-produced electricity, but which would have the advantage, in perpetuity, of conserving the nation's reserves of coal.

Mr. P. J. Noel-Baker (Parliamentary Secretary, Ministry of War Transport) stated in a written answer: Yes, sir. The question of a Severn crossing is under consideration and I hope that a practical scheme will be prepared. If it were decided to construct a barrage, it would certainly be desirable that the barrage should carry a road; but I do not consider the plans for a crossing as necessarily dependent on a barrage scheme.

Fire on London-Penzance Train

Mr. W. W. Wakefield (Swindon—C.) on July 21 asked the Parliamentary Secretary to the Ministry of War Transport (1) whether he was aware that the G.W.R. mail from London to Penzance caught fire near Twyford on July 7, and that many bags of mail were destroyed; that fire engines were unable to get close enough to attend the blaze, and that only after considerable delay did a fire-fighting train arrive with pumps, chemical extinguishers, and other apparatus; that severe delay to traffic occurred; and whether he would consider avoiding similar delays in future by having aircraft available for dropping necessary supplies by parachute quickly on the spot; and (2) whether he was aware that the guard did not know of the fire until the train pulled up; and what means of communication were available between the guard, the driver, and those responsible for signalling the train.

Mr. P. J. Noel-Baker in a written answer stated: The train had the usual means of communication, but unfortunately neither the driver nor the guard knew that a fire had broken out. The latter first was observed by a signalman, who stopped the train at the nearest signal. It was unfortunate that at this point there was no road access to the line; but I understand that the railway fire-fighting train arrived promptly and operated efficiently. I am glad to assure Mr. Wakefield that the traffic delays were less serious than might have been expected. I am afraid his suggestion about the use of aircraft is not practicable at present, but I will bear it in mind for the future.

Staff and Labour Matters

Railway Shopmen's Wages

As we announced briefly last week, a settlement of the claim of the trade unions for an increase of 10s. a week for railway shopmen was reached at a meeting of the Railway Shopmen's National Council held in London on July 19. The settlement provides that the weekly war bonus granted during the present war is to be increased by the following amounts:—

Adults—
Male staff 4s. 6d., making a total of 20s. 6d.
Female staff 4s. 6d., making a total of 15s. 4d.

Juniors—
Male staff—
Under 18 years 1s. 9d., making a total of 5s. 1d.
18 and under 21 3s. 6d., making a total of 10s. 3d.

Female staff—
Under 18 years 1s. 9d., making a total of 5s. 1d.
18 and under 21 3s. 3d., making a total of 10s. 3d.

The increases take effect from April 26, 1943.

The negotiations in connection with railway shopmen have taken somewhat longer than for the other sections of railway staff, and there have been several meetings of the Railway Shopmen's National Council. At one stage of the negotiations the employees' side of the council requested to meet the Railway Executive Committee and, after a meeting lasting several hours, the matter was referred back to the National Council.

It is understood that during the negotiations an offer was made by the employers which provided for a smaller amount of increase for pieceworkers than for time-workers, but this was rejected by the trade unions.

Notes and News

Costa Rica Railway Co. Ltd.—Payment is announced of 3½ per cent., less tax, in respect of arrears up to and including January 1, 1943, on the 6½ per cent. first mortgage debentures.

French Passenger Traffic in 1942.—A French official report recently stated that 579,000,000 passengers were conveyed over the French railways in 1942, compared with 346,000,000 in 1940, and 539,000,000 in 1938.

Great Western Railway.—The directors of the Great Western Railway Company have declared an interim dividend of 2 per cent. for the half-year ended June 30 last on the consolidated ordinary stock. The dividend warrants will be posted on or about August 17.

Institute of Transport Membership.—Arrangements have been made for the members of the Institute of Transport in the Middlesbrough area of Yorkshire to be attached to the Northern Section (which has its headquarters at Newcastle), instead of to the Yorkshire Section.

Robert Stephenson & Hawthorns Limited.—The balance shown by profit and loss account for the year 1942 amounts to £18,566 (£17,853), and £4,015 is brought forward, making £22,581 (£22,495). The dividend for the year is again 5 per cent. less tax, £5,000 (same) is transferred to general reserve, and £3,831 is carried forward.

Insurance of Livestock by Passenger Train.—The British main-line railways have announced that arrangements have been made to continue for a further twelve months from August 1, 1943, the scheme whereby insurance can be effected for live stock conveyed by passenger train on payment of small premiums. The scheme does not cover war risks.

Dover, St. Margarets & Martin Mill Light Railway.—The Dover, St. Margarets & Martin Mill Light Railway Company is applying to the Minister of War Transport for an Order under the Special Enactments (Extension of Time) Act, 1940, in respect of powers conferred by the Dover, St. Margarets & Martin Mill Light Railways Order, 1909.

Paris Metropolitan Railway.—The Official German News Agency states that the Paris Metropolitan Railway carried 658·56 million passengers, and showed gross revenues of fr. 790·07 million, for the first six months of 1943. The number of passengers carried in the same period last year was 610·30 million, and the gross revenues fr. 714·32 million. This year's figures create a new high record.

Importance of the Locomotive Driver.—In dismissing two summonses against a locomotive driver charged with absenting himself from Home Guard parades, the Chairman of the Dorchester Bench said "we think the position of an engine driver is one of great responsibility, and should receive special consideration." The driver in question had informed the Bench that he did not feel equal to the double strain of driving an engine and attending Home Guard parades.

Public-Utility Undertakings in Portugal.—Clarification still is being sought of the recently-promulgated Law concerning the nationalisation of public-utility undertakings in Portugal. Sir Alexander Roger, Chairman of the Anglo-Portuguese Telephone Co. Ltd., expressed the hope recently that it would not be found detrimental to that company's interest and to its usefulness to the country. The enterprise of the company had added materially to the extension of communications in Portugal, as well as to Anglo-Portuguese trade. Sir Alexander Roger recalled the speech of Dr. Salazar, made last April, when the latter stated that "the national economic policy does not presuppose or demand that the State will absorb private concerns and take over monopolies, even when the latter are concerned with what are in effect public services."

Marseilles Transporter Bridge.—The Berlin radio recently stated that the great transporter bridge at Marseilles (wrongly translated by some of the daily newspapers as "the transporter suspension railway") is to be scrapped for the salvage value of its metal, and to be replaced after the war by a tunnel. This transporter bridge links the two quaysides of the harbour.

North Milan Railway.—The Ferrovie Nord-Milano reported substantial increases in both passenger and goods traffic during 1942. The company decided to absorb the Société Ausiliare Lombarda Autoservizi (A.L.A.) of Milan, a road motor undertaking operating a system of 80 miles in conjunction with the Nord-Milano services, and in which the railway company was financially interested.

London Transport "C" Stock.—The London Passenger Transport Board announces that a payment on account of interest on London Transport "C" stock for the financial year ending on December 31, 1943, will be made by the board's Registrars, the Bank of England, on August 20, 1943, to all holders of London Transport "C" stock whose names are registered in the books of the Bank of England at the close of business on July 27, 1943, such payment to be at the rate of 1½ per cent. actual (the same rate as in the previous year), less income tax at 10s. in the £.

Underground Train Accident in Turkey.—The German Radio version of the Istanbul underground railway accident (which we recorded in our July 16 issue), is considerably different from that transmitted by the correspondent of Reuters. According to the German report, 18 persons were killed and 44 injured, against the 2 persons killed and 22 injured which the Reuters report gave. It appears that, when the cable broke, cars on both lines crashed down into houses in Galata (the lower terminus), and it is possible that the differences in the reported number of casualties may represent respectively the railway passengers killed and injured, and the total persons affected, the latter including residents of the houses and passers-by in the street.

Mexican Railway Co. Ltd.—Gross receipts for the half-year to December 31, 1942, amounted to 7,695,935 pesos, a decrease of 206,000 pesos as compared with the corresponding half-year of 1941, but the expenses of 9,273,402 pesos showed an advance of 346,000 pesos, leaving a net deficiency on operation of 1,577,467 pesos. After charging net revenue with debenture interest and crediting the proceeds from the sale of coupons of 40-year bonds, etc., there remains a deficiency at December 31, 1942, of £2,126,184. Foreign imports *via* Vera Cruz, the best paying traffic, which before the war averaged 74,000 tons in a half-year, decreased to 5,716 tons in the period under review. The increase in expenses is almost entirely due to rental paid for rolling stock hired from other railways. For the four months January 1 to April 30, 1943, the net receipts cabled from Mexico show a net profit of 168,000 pesos, against 98,000 pesos. These figures, however, may require adjustment in respect of certain increases in salaries paid by the Mexican Government to employees of the company during these four months.

Manila Railway Co. (1906) Ltd.—It is announced that no interest will be paid on the "A" debentures and stock in respect of the half year to July 15, 1943. The company was unable to meet the interest on these securities for the previous half year. A scheme has been proposed for an interest moratorium on the 4 per cent. "A" and 3½ per cent. "B" deben-

British and Irish Railway Stocks and Shares

Stocks	Highest 1942	Lowest 1942	Prices July 23, 1943	Prices Rise / Fall
G.W.R.				
Cons. Ord.	58	39	62	—
5% Con. Pref. ...	115½	105½	113½	—
5% Red. Pref. (1950)	109½	103½	108	—
5% Rt. Charge ...	133½	123½	126½	—
5% Cons. Guar. ...	130½	121½	125½	—
4% Deb.	117	105	109	—
4½% Deb.	118	108	110½	—
4½% Deb.	125	113	118½	—
5% Deb.	137	127	129	—
2½ Deb.	77	70	75½	—
L.M.S.R.				
Ord.	28½	16½	33	+ ½
4% Pref. (1923) ...	63½	50½	62½	— ½
4% Pref.	76½	67½	76½	— 1
5% Red. Pref. (1955)	103½	94½	103½	—
4% Guar.	104½	97½	101	—
4% Deb. ...	108½	101½	104½	—
5% Red. Deb. (1952)	111	107½	109½	—
L.N.E.R.				
5% Pref. Ord. ...	9¾	2½	9¾	— ¼
Def. Ord.	5	1¼	4¼	— ¼
4% First. Pref. ...	62	49½	62½	— ½
4% Second Pref. ...	32½	18½	34½	— 1
5% Red. Pref. (1955)	95½	79	97½	+ —
4% First Guar. ...	98	88	98½	—
4% Second Guar. ...	90	78	91½	—
3% Deb.	85	76	80½	—
4% Deb.	106½	100½	103	—
5% Red. Deb. (1947)	106	103	104	—
4½% Sinking Fund Red. Deb.	106	102½	105½	—
SOUTHERN				
Pref. Ord.	77	61½	76	—
Def. Ord.	23½	14½	24½	—
5% Pref.	112½	104	112	—
5% Red. Pref. (1964)	110½	105½	112½	—
5% Guar. Pref. ...	131	121½	125½	—
5% Red. Guar. Pref. (1957)	115½	109½	114½	—
4% Deb.	116	104½	108	—
5% Deb.	134	125½	129½	—
4% Red. Deb. (1962–67)	110½	106	107½	—
4% Red. Deb. (1970–80)	111	106½	107½	—
FORTH BRIDGE				
4% Deb.	109 3/16	108	106	—
4% Guar.	105½	100	104½	—
L.P.T.B.				
4½% "A"	122½	111	117½	—
5% "A"	131½	122	127½	—
3% Guar. (1967-72)	95½	97½	99	—
5% "B"	121	111½	115½	—
"C"	56½	38	63½	—
MERSEY				
Ord.	27½	20½	32	+ 1
3% Perp. Pref. ...	61½	56½	61	— —
4% Perp. Deb. ...	102½	99½	103§	— 1
3% Perp. Deb. ...	80½	76	78§	— 1
IRELAND				
BELFAST & C.D.				
Ord.	9	4	9	—
G. NORTHERN				
Ord.	29½	12½	19¾	+ 1
G. SOUTHERN				
Ord.	25	10	10½	—
Pref.	29	12½	15	—
Guar.	53	35½	35	+ 1½
Deb.	71½	55½	57½	+ 1½

§ ex-dividend

tures for one year from January 15, 1943, with power to a committee to extend the period.

Silentbloc Limited.—The report for the year ended May 31, 1943, states that the profit including profit of subsidiary company, after charging all working expenses and directors' fees, and providing for depreciation and taxation, amounted to £19,171. Adding £6,787, makes £25,958 available. Deducting interim dividend of 3d. a share (12½ per cent.), less tax, leaves £16,583. The directors propose a final dividend of 3d. a share (12½ per cent.), less tax, carrying forward £7,208.

A. C. Wickman Limited New Capital.—A resolution was recently approved at an extraordinary general meeting to increase the capital of the company to £925,000 by the creation of £250,000 £1 six per cent. cumulative participating and redeemable preference shares and to amend the articles. These additional shares have now been issued for cash at £1 a share under contracts with Kleinwort Sons & Co. The purpose of the issue is to provide additional working capital necessitated by the large increase in the company's business.

New Danube Bridge Project.—It is now reported that the plans for the construction of a new Danube bridge—to be one of the largest in Europe—between Giurgevo (Roumania) and Russe (Bulgaria), which were approved by a Bulgarian-Roumanian Commission on June 20, as recorded in our July 2 issue (page 26), have been carried a stage further by the placing of an order with Fried. Krupp A.G. In a recent Vichy Radio broadcast, emphasis was laid upon the fact that this bridge will link the Ploeshti oilfields and Bucharest with the Black Sea port of Varna.

Millar's Timber & Trading Co. Ltd.—Profit for the year 1942 was £77,658 (£92,907), to which is to be added £83,861 brought forward, making £161,519. After deducting directors' fees £1,950, transfer to depreciation and reserve account £8,000 (£10,000), and year's dividend on preference shares £29,750, there is a balance of £121,819. Dividends recommended are 6 per cent., less tax, on the preferred ordinary shares and 5 per cent., less tax, on the ordinary shares. These dividends absorb £36,833, leaving £84,986 to be carried forward. For the previous year the ordinary dividend was 7½ per cent.

Southern Railway Company.—The directors of the Southern Railway Company announce that the estimated net revenue accruing to the company for the first half of the year is sufficient to pay (less income tax at the rate of 10s. in the £) interim dividends of 2½ per cent. on the guaranteed preference and preference stocks and 2½ per cent. on the preferred ordinary stock, and such interim dividends will be paid accordingly. An interim dividend of 2½ per cent. was paid on the preferred ordinary stock last year. The warrants will be posted on August 16 to those proprietors whose names were registered in the books of the company on July 5, on which date the balances were struck.

Institute of Transport.—A meeting of members of the Institute of Transport in Northern Ireland was held at the Grand Central Hotel, Belfast, on June 28, when it was decided to invite the council to assent to the establishment of a Northern Ireland Section. The following officers and committee were appointed: Chairman: Mr. M. J. Watkins, C.B.E.; Vice-Chairman: Mr. D. L. Clarke, O.B.E.; Honorary Treasurer: Mr. H. S. Knott; Honorary Secretary: Mr. Martin Brown. Committee: Lt.-Colonel Robert McCreary, J.P., O.B.E., M.C.; Messrs. J. Lockhart; A. Morrison; W. E. Macve; and J. Mackle. Messrs. W. Cox and F. W. Devitt were appointed Honorary Auditors. It was stated that arrangements had been made for classes to be held in the Belfast Municipal College of Technology for students preparing for the institute examinations.

Vickers Limited.—The following interim dividends were declared on July 16: 2½ per cent. actual, less tax, on the preferred 5 per cent. stock; 2½ per cent. actual, less tax, on the 5 per cent. preference stock; and 2½ per cent. actual, free of tax up to 6s. in the £, on the cumulative preference stock. Payment will be made on August 20.

Argentine Coal Deposits.—The appointment of a special committee to study the question of developing the coal resources of Argentina was recorded in our issue of February 26. Investigations since carried out by Government experts have revealed the existence of two valuable coalfields at San Rafael, in the Province of Mendoza, the potential output of which is estimated at not less than 2,500,000 tons and 1,000,000 tons, respectively.

A.B.C. Coupler & Engineering Co. Ltd.—In the report for the year to September 30, 1942, it is stated that the profit, after the usual depreciation of buildings and plant has been written off, and after making provision for taxation and contingencies, was £6,590 (£5,767), and £1,489 was brought in, making £8,079. A transfer is made to general reserve of £4,000 (£3,000), and the dividend on the ordinary shares for the year is maintained at 10 per cent., less tax, leaving £1,589 to be carried forward. Contact is still maintained with the railway using the company's specialities and orders received are being executed when conditions permit.

British Standards Institution.—At the annual general meeting of the British Standards Institution on July 20, at which the Rt. Hon. Hugh Dalton, President of the Board of Trade, was principal guest, the Chairman, Sir Percy Ashley, in the course of his address said that the total number of standards in use was 1,500. He believed that industries long associated with the development of the institution recognised the advantage of a single, independent, national standards institution. In presenting the accounts, Dr. E. F. Armstrong, Chairman of the Finance Committee, said that contributions to expenses during the year had amounted to £53,000. The Government contribution depended on the extent of industrial contributions, and he trusted that more industrial firms would become contributing members.

Conference on Road-Transport Education.—A conference, convened by the President of the Institute of Transport in pursuance of a suggestion made by Mr. R. Stuart Pilcher, to discuss the possible extension of road-transport educational facilities, was held on July 7 in the Council Chamber of the Institution of Electrical Engineers. The following organisations were represented: Associated Road Operators; Association of Principals of Technical Institutions; Commercial Motor Users' Association; Municipal Passenger Transport Association; National Road Transport Employers' Federation; Public Transport Association; Scottish Road Passenger Transport Association. There were present also the Chairman of the institute's Examinations Committee (Mr. G. S. Szlumper); the Educational Adviser (Mr. J. W. Ramsbottom); and members of the council of the institute. Mr. Pilcher was elected Chairman of the conference. It was agreed that there was need for further facilities for road-transport education, and it was decided to appoint a committee to consider the subject in detail.

General Electric Co. Ltd.—For the year to March 31, 1943, the profit on trading and income from investments amounted to £1,748,917 (£1,725,137). Net profit, after deducting £459,619 (£460,795) for depreciation, £4,281 (£4,485) for directors' fees, and £89,276 (£78,911) contribution to pension fund, came to £1,195,741 (£1,180,946) to which has to be added £815,379 brought forward, making a total balance available of £2,011,120. The directors recommend a transfer of £700,000 (£685,000) to income tax reserve, and a dividend on the ordinary stock at the rate of 10 per cent. per annum, less tax, together with a bonus of 7½ per cent., less tax, leaving £817,762 to be carried forward. The distributions to stockholders now recommended are the same as for the previous year.

Tilling Motor Services Limited.—The first report, for the year to June 30, 1943, shows that the income from investments and other revenue amounted to £396,728. After making provision for income tax, preliminary expenses in connection with the formation of the company, and other expenses, there is a profit of £351,396. Final dividend on the ordinary shares is 4 per cent., tax free, making 7½ per cent., tax free, for the year. A transfer of £25,000 is made to general reserve, and £16,396 is carried forward. Sir J. Frederick Heaton, the Chairman, in his statement issued with the report, shows that the subsidiary and associated companies are carrying more passengers than in ordinary times, but, in order to conserve rubber tyres and imported fuel, services have had to be curtailed. For these reasons, and in spite of the fact that approximately pre-war fares are being charged, profits are much in excess of the pre-war standard, and the companies are consequently paying large sums in excess profits tax. This company receives its income from the net profits which remain, and is itself not liable for excess profits tax.

Contracts and Tenders

Below is given a list of orders placed recently by the Egyptian State Railways:—

Guest, Keen & Nettlefolds Limited: Screws.
Skefko Ball Bearing Co. Ltd.: Ball bearings.
North British Locomotive Co. Ltd.: Slide bars.
Callander's Cable & Construction Co. Ltd.: Wire.
British Insulated Cables Limited: Wire.
W. T. Henley's Telegraph Works Co. Ltd.: Wire.
Trier Bros. Ltd.: Locomotive spares.
Rivet, Bolt & Nut Co. Ltd.: Rivets.
Marconi Instruments Limited: Frequency oscillator.
Siemens Brothers & Co. Ltd.: Relays.
Caprotti Valve Gears Limited: Spares.
Standard Telephones & Cables Limited: Binders, rectifiers.
Henry Williams Limited: Springs.
Laurence Scott & Electro-Motors Limited: Chain sprocket wheels.
British Iron & Steel Corporation: Mild steel channels.
Ericsson Telephones Limited: Transmitter.
Charles Pearce & Sons Ltd.: Paper sleeves.
Morgan Crucible Co. Ltd.: Carbon brushes.
Quasi-Arc Co. Ltd.: Electrodes.
Murex Welding Processes Limited: Electrodes, welding rods.
Thomas Bolton & Sons Ltd.: Welding rods.
British Oxygen Co. Ltd.: Welding rods.
Phosphor Bronze Co. Ltd.: Welding rods.
Accles & Pollock Limited: Steel tubes.
Talbot-Stead Tube Co. Ltd.: Steel tubes.

Railway Stock Market

Although the disposition was to await definite indications of Italian war policy, the resignation of Mussolini increased the cheerful trend in Stock Exchange markets. The rise in values was widespread, particularly in industrial shares. Sentiment in the latter reflected hopeful views current as to post-war prospects, although it is realised that the long-term outlook for many industries and trades will turn on many factors including the period after the war that it is considered necessary to continue Government controls and regulations. In the absence of expansion in demand, gilt-edged securities were inclined to ease, and movements in front-rank investment securities were small. Home railway prior-charges maintained recent gains. Towards the end of last week there was a small rally in the junior stocks on renewed recognition of the large yields, but the better tendency was not maintained. At the time of writing, prices have been inclined to ease in front of the L.M.S.R. and L.N.E.R. interim dividend decisions. The further rise in industrial shares, in which a good deal of speculative interest appears to be developing on optimistic assumptions as to the post-war outlook, has further reduced yields; the return on some industrial shares is now only half that obtainable on home railway junior stocks. Unless railway stockholders are to be treated unfairly in any post-war transport plans, which is highly improbable, there is no justification for home railway junior stocks being on their present high yield basis. There is no doubt that sentiment is affected to some extent by the fact that the reasonable hopes of stockholders have been disappointed on many occasions in the past. It should not be overlooked, however, that there is a strong case for the revenue permitted by the Railways Act of 1921 forming the basis of any post-war arrangement affecting the railways. Moreover, there are good prospects of dividends at around current rates continuing for some time after the end of the war, expectations as to which have been mentioned on various occasions in these notes.

Whereas home railway stocks have been dull, other sections of the railway market have received increased attention. French railway bonds were strong under the lead of Nord, which have moved up to 67 at the time of writing. Moreover, there was a better tendency in securities of Argentine and other South American railways. Nevertheless, as has been emphasised by the statement of the directors of the Great Western of Brazil Railway, costs, including wages are still increasing, and the overtaking of arrears of renewals may involve very heavy expenditure if prices remain at about their present level after the war. The directors of the Great Western of Brazil Railway also mention that the present increased receipts reflect wartime conditions and absence of road competition, which may be purely transient. Hopeful market views as to the outlook for South American railways generally are based mainly on the belief that the rehabilitation of Europe after the war will call for very large supplies of cereals and other supplies.

Compared with a week ago, Great Western eased from 61½ to 60¾ xd.; the 5 per cent. preference was 112 xd., compared with 113½, and the 4 per cent. debentures remained at 109. L.M.S.R. ordinary was relatively firm pending the interim dividend decision, and at 32⅝, compared with 32½, was fractionally better on balance. Whereas L.M.S.R. 1923 preference at 63 was the same as a week ago, the senior preference moved back from 77½ to 76¾; the guaranteed stock was again 101. L.N.E.R. first guaranteed was again 98; the second guaranteed improved half-a-point to 91½. This railway's second preference reacted from 35¼ to 34⅜; the first preference kept at 63. On the other hand, Southern deferred was slightly better at 24¾, compared with 24½; the preferred was 75 xd. compared with 76. Elsewhere, London Transport "C" was 63½ xd. as against 64¼ a week ago.

Improvement in Argentine railway securities was widely spread but fractional in character. Elsewhere, San Paulo ordinary gained a point to 59, and United of Havana debentures were better. Canadian Pacifics have been a relatively quiet market.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ending	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1941/2	No. of Weeks	Aggregate traffics to date: Totals 1942/3	Aggregate traffics to date: Totals 1941/2	Aggregate traffics to date: Increase or decrease	Shares or stock	Prices: Highest 1942	Prices: Lowest 1942	Prices: July 23, 1943	Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	18.7.43	34,200	+ 10,290	28	789,590	619,140	+ 170,450	Ord. Stk.	14	7⅛	14	Nil
	Argentine North Eastern	753	17.7.43	14,364	+ 348	3	31,884	33,804	— 1,920	"	6½	3	7	Nil
	Bolivar	174	June, 1943	4,868	+ 500	26	32,414	27,431	+ 4,983	6 p.c. Deb.	19¼	10	20¼	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	20⅛	9	21¼	Nil
	Buenos Ayres & Pacific	2,807	17.7.43	84,600	+ 2,100	3	195,900	229,620	— 33,720	Ord. Stk.	7¼	4	6¼	Nil
	Buenos Ayres Great Southern	5,080	17.7.43	132,300	+ 7,320	3	330,240	316,020	+ 14,220	Ord. Stk.	12¼	7⅛	12	Nil
	Buenos Ayres Western	1,930	17.7.43	45,780	— 1,800	3	110,580	120,420	— 9,840	"	12⅜	6	11	Nil
	Central Argentine	3,700	17.7.43	120,912	+ 2,061	3	272,739	258,158	— 25,419	"	9⅛	4 7/16	8¾	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	3¾	2⅛	4	Nil
	Cent. Uruguay of M. Video	972	17.7.43	31,263	+ 10,089	3	576,515	427,925	+ 148,590	Ord. Stk.	8	4	6¼	Nil
	Costa Rica	262	May, 1943	22,861	+ 5,430	41	173,827	228,220	— 54,393	Stk.	16¼	11	14	Nil
	Dorada	70	19.6.43	21,939	+ 7,550	20	98,259	63,546	+ 34,713	1 Mc. Db.	90⅛	89	94¼	6 11/16
	Entre Rios	808	17.7.43	18,624	+ 966	3	43,152	43,698	— 546	Ord. Stk.	33	4⅛	7	Nil
	Great Western of Brazil	1,030	17.7.43	15,100	+ 5,400	28	442,100	285,500	+ 156,600	Ord. Sh.	9/-	9/-	53/9	Nil
	International of Cl. Amer.	794	May. 1943	$646,832	+ $85,592	20	$3,312,644	$3,159,152	+ $153,492		—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	1⅛	5/3	1⅛	Nil
	La Guaira & Caracas	22½	June, 1943	8,195	+ 2,335	26	53,590	37,990	+ 15,600	5 p.c. Deb.	11⅛	5	83½	Nil
	Leopoldina	1,918	17.7.43	38,543	+ 7,550	28	941,954	846,552	+ 95,402	Ord. Stk.	6¾	3½	6	Nil
	Mexican	483	14.7.43	ps. 369,400	+ ps. 43,200	2	ps. 761,200	ps. 651,900	+ ps. 109,300	Ord. Stk.	1	¾	1⅛	Nil
	Midland Uruguay	319	May, 1943	15,947	+ 993	48	168,895	152,464	+ 16,431	—	—	—	—	—
	Nitrate	382	15.7.43	7,089	— 8,683	28	78,182	100,400	— 22,218	Ord. Sh.	77/	3⅛	77/6	Nil
	Paraguay Central	274	16.7.43	$5,417,000	+ $1,965,000	3	$12,390,000	$10,118,000	+ $2,272,000	Pr. Li. Stk.	53	40	53½	11⅛
	Peruvian Corporation	1,059	June, 1943	104,734	+ 22,552	52	1,045,065	915,630	+ 129,435	Pref.	19⅝	5½	15	Nil
	Salvador	100	April, 1943	c 122,000	+ c 51,000	42	c 1,034,000	c 853,172	+ c 180,828	—	—	—	—	—
	San Paulo	153⅓	11.7.43	49,075	+ 10,773	28	1,089,718	1,003,700	+ 86,018	Ord. Stk.	59	41	58½	3 3/16
	Taltal	160	June, 1943	2,605	— 3,195	29	48,811	55,510	— 6,699	Ord. Sh.	41/-	23/-	32/6	Nil
	United of Havana	1,301	17.7.43	50,642	+ 19,215	3	124,891	84,306	+ 40,585	Ord. Stk.	8¼	2½	5½	Nil
	Uruguay Northern	73	May, 1943	1,666	+ 483	48	15,772	13,266	+ 2,506	—	—	—	—	—
Canada	Canadian Pacific	17,034	14.7.43	1,184,600	+ 217,000	28	29,579,800	26,139,600	+ 3,440,200	Ord. Stk.	16¼	9 5/16	16¼	Nil
India†	Barsi Light	202	30.6.43	17,835	+ 4,928	13	63,075	39,600	+ 23,475	—	—	—	—	—
	Bengal & North Western	2,090	Nov., 1942	264,975	— 33,087	8	449,400	561,082	— 111,682	—	—	—	—	—
	Bengal-Nagpur	3,267	Feb., 1943	932,775	+ 84,975	46	10,031,400	9,111,000	+ 920,400	Ord. Stk.	102½	88	102⅛	3 3/16
	Madras & Southern Mahratta	2,939	30.4.43	286,500	+ 48,748	4	840,375	681,698	+ 158,677	"	105½	87	107½	6 3/16
	Rohilkund & Kumaon	571	Nov., 1942	555,750	+ 5,072	8	115,950	99,909	+ 16,041	"	—	—	—	—
	South Indian	2,349	20.4.43	191,693	+ 10,877	3	380,790	359,828	+ 20,962	"	103¾	88⅞	103½	4 3/16
Various	Egyptian Delta	—	10.6.43	13,955	+ 2,968	10	98,431	75,685	+ 19,746	Prf. Sh.	5⅛	1⅛	2½	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	44	35	37½	9 3/16
	Midland of W. Australia	277	May, 1943	34,519	+ 7,674	48	355,515	229,955	+ 125,560	Inc. Deb.	95	90	100	6
	Nigerian	1,900	31.3.43	51,142	+ 29,172	51	3,606,468	3,266,869	+ 339,599	—	—	—	—	—
	South Africa	13,291	8.5.43	885,689	+ 140,973	5	4,608,221	4,180,541	+ 427,680	—	—	—	—	—
	Victoria	4,774	Jan., 1943	1,480,058	+ 169,521	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of 1/16

† Receipts are calculated @ 1s. 6d. to the rupee

Argentine traffics are given in sterling calculated @ 16⅛ pesos to the £

§ ex dividend